Date 27/7/07

systolic, and no patients had a fall of greater than 20 mm of diastolic pressure Thus it would seem that 2 patients (B B and C M) had a significant lowering of their systolic blood pressure Twenty-three patients were given placebo tablets, without significant change in the mean pretreatment pressure

Symptoms—Improvement in hypertensive symptoms occurred in 16 of 25 patients (64 per cent) during treatment with veratrum viride and in 14 of 23 patients (60 8 per cent) on placebo tablets There seemed to be no correlation between duration of treatment, daily dosages or response of blood pressure and symptomatic improvement

Toxic Reactions—In 16 patients (64 per cent) nausea and vomiting developed, of sufficient severity to

and 3 (12 per cent) had a more abnormal electrocardiogram during treatment with veratrum

Teleroentgenograms—Three patients (12 per cent) had at least a 1 cm decrease in the transverse cardiac diameter on a 2 meter roentgenogram of the chest In 2 patients (8 per cent) the transverse cardiac diameter increased at least 1 cm during treatment with veratrum

Physical Findings—In 1 patient (4 per cent) there was an improvement in the appearance of the retina on funduscopic examination, in 3 (12 per cent) the retina showed progressive hypertensive changes There were no significant changes on physical examination of the heart during treatment with veratrum

Renal Status—There was no evidence of change in renal status during treatment with veratrum.

Data on 25 Ambulatory Hypertensive Patients Treated with Veratrum Viride

Patient	Age	Sex	Duration of Treatment in Weeks	Maximum Daily Dose in Craw Units	Mean Blood Pressure,* Mm Hg: Pretreatment	Mean Blood Pressure,* Mm Hg: With Treatment	Electrocardiographic Changes†	Change in Transverse Cardiac Diameter†	Symptomatic Improvement: Veratrum	Symptomatic Improvement: Placebo	Toxic Reactions Due to Veratrum
C O	44	F	20	120	209/106	1[illegible]/100	+	+	No	No	Yes
L C	59	M	12	110	191/12[illegible]	198/130	+	0	No		No
B B	49	M	20	100	216/125	177/106	0	+	Yes	No	Yes
C M	52	F	30	90	220/127	182/109	0	0	Yes	Yes	Yes
L S	49	M	25	90	231/127	223/115	—	0	Yes	Yes	Yes
J S	42	F	20	90	229/130	208/128	+	0	Yes	Yes	Yes
R O	62	F	18	90	186/111	189/104	+	0	No	Yes	Yes
A J	65	F	18	90	162/106	191/115	0	0	Yes	Yes	Yes
W M	51	M	14	90	161/107	104/97	0	0	Yes	Yes	No
F M	49	F	28	80	245/114	225/113	—	0	Yes	Yes	Yes
S M	38	F	26	80	170/109	152/100	0	0	Yes	No	Yes
F B	43	F	23	80	202/114	190/119	0	0	No	No	Yes
V G	49	M	17	80	175/117	158/107	0	0	No	No	No
B R	40	F	20	80	224/141	219/142	0	0	Yes	Yes	No
A D	43	F	18	80	20[illegible]/115	201/129	0	+	Yes	Yes	No
M D	38	F	20	80	198/122	215/120	—	—	Yes	Yes	No
F T	48	F	18	80	241/129	244/127	0	0	No	Yes	Yes
C W	42	F	18	80	195/122	191/129	—	0	No	No	Yes
J K	56	M	11	80	184/100	176/94	0	0	Yes	Yes	No
L C	44	F	14	80	220/130	218/123	0	0	Yes	Yes	No
R M	57	M	12	70	197/95	184/90	0	0	Yes	Yes	Yes
F T	30	M	18	70	170/117	159/108	0	0	Yes		Yes
A T	38	M	22	70	166/122	164/124	0	—	No	No	Yes
R C	42	F	17	60	166/118	162/116	0	0	No	No	No
E M	52	F	12	60	181/96	160/86	0	0	Yes	No	Yes

* Average of ten blood pressure determinations
† 0 no significant change + significant change toward normal — significant change away from normal

limit total daily dosage of veratrum Fifteen of these patients had relief of symptoms when given placebo tablets One patient with toxic manifestations was not given placebo tablets

In general, toxic reactions seemed to be correlated with total daily dosage However, there was great variation in tolerated dose from patient to patient symptoms usually occurred about five hours after medication Little relief of symptoms occurred after the use of 1 mg of atropine sulfate intravenously T toxic symptoms usually persisted for five to eigh hours and then gradually subsided In 2 patie shocklike state developed, characterized by hypotension, bradycardia, cold clammy skin and confusion The bradycardia responded to pa ministration of atropine, but the other sym pr or t hours and the

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dy was supported by grants from Park Ca McCormick and Company Incorporated Ba he Section of Infectious Diseases Department o ity of Maryland School of Medicine research fellow in medi Parker) third year medical student (Mr Lister) resident medicine (Dr Bauer) assistant resident in medicine (Dr Hall) associate professor of medicine (Dr Woodward)

Drs Arthur Y Milholland St. Michaels Md , Harold Grott V Baltimore General Hospital Joseph J Bowen Mercy Hospital Balt and Joseph M Miller Veterans Administration Hospital Fort How Md supplied clinical material for this study Miss Ann Mere and Mr Merill J Snyder gave technical assistance

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4 Ransmeier J C. Price H J, Barnes Z. B Jr Aureom the Treatment of Tularemia Am J Med 7 518-524 dose L and Mason, S D Oeculoglandular with Aureomycin, J A M A **142** 99 100 (Jan. 14) ours thereaf and others

SUMMARY

Terramycin at proper dosage levels effects a satisfactory cure rate in the treatment of gonorrhea, although the dose required for cure is somewhat higher than has been necessary with chloramphenicol From 1 to 2 Gm of terramycin hydrochloride in divided doses gives a cure rate of 80 to 100 per cent, while single doses of 750 mg of chloramphenicol give similar cure rates Clinical healing of lesions of both syphilis and granuloma inguinale occurs promptly with terramycin hydrochloride given orally in doses of 60 mg per kilogram of body weight per day

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VERATRUM VIRIDE IN THE TREATMENT OF HYPERTENSIVE VASCULAR DISEASE

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MAURICE M BEST, M D
and
MURRAY KINSMAN, M D
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Recent favorable reports of the use of the veratrum alkaloids in essential hypertension suggest the need for revaluation of the drug which had passed into "deserved oblivion"[1]

In 1946 Hite[2] reported the first clinical evaluation of the use of the biologically standardized whole powdered drug He observed in a series of 30 cases that 60 per cent had a fall of greater than 25 mm of mercury in systolic pressure and 26 6 per cent a reduction of 20 mm in diastolic pressure Daily dosage varied from 15 to 30 Craw units [illegible] The only reactions noted were vomiting in 1 patient and headache in another No effect of the drug was noted on occasional electrocardiograms

More recently, Freis and his associates[7] reported extensive studies on the hemodynamic effects and clinical use of veratrum viride in man In their group of 34 ambulatory hypertensive patients, 30 (88 per cent) exhibited a significant fall in blood pressure and 27 (79 per cent) expressed subjective improvement Occasional patients had improvement in electrocardiograms and reduction in cardiac silhouette Daily dosage varied from 30 to 80 Craw units Thirteen patients (38 2 per cent) experienced toxic reactions

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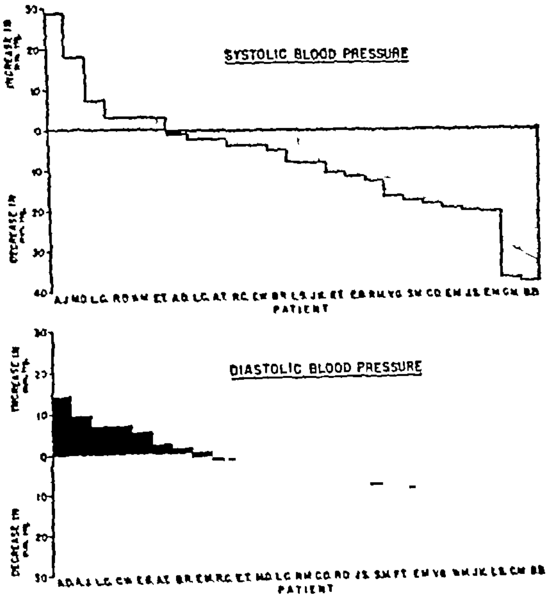
nation made Studies of the blood included a Kahn test a complete blood cell count and determinations of nonprotein nitrogen Urinalysis, urine concentration tests and intravenous pyelography were used to evaluate renal function Further cardiac studies included electrocardiograms and roentgenologic examination In addition, roentgenograms of the sella turcica were made on selected patients, as well a benzodioxan, amobarbital sodium (amytal sodium®) and tetraethylammonium chloride studies Nine patients previously digitalized were maintained on digitalis during this study No other medication was given

Medication—All the patients received biologically assayed whole powdered veratrum viride (vertavis®)[4] Each tablet contained 10 Craw units Initially each patient received one tablet morning and evening At weekly intervals an additional tablet was added alternately in the morning or evening At no time was more than 10 Craw units given in any one hour

Identical placebo tablets were given as soon as toxic symptoms of nausea, vomiting or severe vertigo occurred and the persistence of symptoms was noted After completion of veratrum therapy, 23 patients received placebo tablets for at least one month, and the effect on blood pressure and hypertensive symptoms was evaluated



Effect of veratrum viride on mean blood pressure in 25 patients

Follow-Up of Patients—All patients were examine at weekly intervals, at which time the blood pressure was recorded in the sitting position in both arms, after a fifteen minute rest period, by one of two examiners They were questioned, without comment, on symptom of headache, dyspnea, vertigo, nausea and vomiting At no time was the patient told the level of his bloo essure or the trend in pressure All laboratory te repeated at the completion of veratrum therap fect of placebos on symptoms and blood pressur ted are not available on the response of these patients to placebo therapy The similar symptomatic improvement obtained with veratrum and placebos in our patients emphasizes the difficulty in evaluating purely subjective response to any therapy for hypertension

The frequency of side reactions to veratrum, particularly nausea and vomiting, has been previously noted.[3b] The amount of veratrum that produced toxic reactions varied considerably from patient to patient and also in the same patient. Many of the patients had toxic manifestations without an associated fall in blood pressure. In only 2 of our patients did signs and symptoms of vasovagal collapse develop[6] Nausea, vomiting and anorexia from use of the drug usually persisted from four to eight hours after its discontinuance but in some cases persisted for eighteen hours These frequent undesirable side effects of veratrum limited its use in many patients

An evaluation of veratrum viride in hypertensive crisis is now being made[7] Results in 3 of 4 patients thus far studied have been encouraging A marked lowering of blood pressure was obtained by using an hourly dosage of 20 Craw units continued for ten to twelve hours

The effects of veratrum viride on the electrocardiogram have been difficult to evaluate in these patients because of the underlying cardiac disease. Preliminary studies[7] on the normal electrocardiogram of 4 persons without cardiovascular disease show an effect of large doses of veratrum The changes noted in 2 patients were depression of the S-T segment and flattening of the T waves in leads 2 and 3 In 1 patient pronounced sinus arrhythmia developed The only change noted in the fourth patient resulting from use of the drug was sinus bradycardia

SUMMARY AND CONCLUSIONS

1 Veratrum viride in the form of biologically assayed whole powdered drug was administered to 25 ambulatory hypertensive patients The study was controlled by the use of placebo tablets

2 The majority of patients studied did not have a clinically significant lowering of blood pressure

3 Symptomatic improvement occurred in 64 per cent of the patients while they were receiving veratrum and in 60 8 per cent while they were receiving placebo tablets

4 Toxic symptoms appeared in 64 per cent of the patients

5 Veratrum viride in the form used in this study proved to be an unsatisfactory drug for the treatment of ambulatory hypertensive patients

6 Elimination of the toxic side effects of veratrum viride may permit a large enough dosage to produce a desirable hypotensive effect.

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6 Lewis T Diseases of the Heart, Described for Practitioners and Students ed. 4 London Macmillan Co Ltd 1946 p 109

7 Coe, W S and Best, M. M Unpublished data

Arbitration—Whenever there arises between physicians a grave difference of opinion, or of interest, which cannot be promptly adjusted, the dispute should be referred for arbitration, preferably to an official body of a component society —Section 1, Chapter III of the PRINCIPLES OF MEDICAL ETHICS Medical Association.

USE OF CHLORAMPHENICOL (CHLOROMYCETIN®) IN EXPERIMENTAL AND HUMAN TULAREMIA

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HOWARD E. HALL M D
and
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Experimental evidence indicated that mice heavily infected with Pasteurella tularensis survived longer when treated with aureomycin or streptomycin than did those receiving chloramphenicol (chloromycetin®)[1] It was not sufficiently emphasized in this first report that experimental mouse tularemia presents certain limitations as far as mechanisms of host immunity are concerned[2] and that other animals may perhaps be better suited for assay of chemotherapeutic agents in this infection Nevertheless, the evidence obtained in mice clearly indicated that, under comparable conditions, chloramphenicol was less effective than either aureomycin or streptomycin in prolonging the survival of infected animals The efficacy of aureomycin in the treatment of Past tularensis infections in animals[3] and of patients with tularemia has now been affirmed[4]

The use of chloramphenicol in the treatment of human tularemia was deferred because the weight of evidence favored aureomycin therapy Nevertheless we reconsidered this opinion for the following reasons (1) the experimental data demonstrated that chloramphenicol-treated mice survived slightly longer than control animals, (2) chloramphenicol is highly effective in vitro against Past tularensis and (3) we had acquired considerable experience in the use of chloramphenicol in the treatment of gram-negative infections in man Accordingly, this report presents the results obtained in a repeat mouse experiment and the clinical effects of this extremely versatile antibiotic on the course of 6 human cases of tularemia

EXPERIMENTAL STUDIES IN MICE

Methods—The Rector strain of Past tularensis was employed Its virulence was tested in guinea pigs by subcutaneous injection of 0 5 cc of a 10^{-3} (1 1,000) suspension This infecting dose caused death in approximately seventy-two hours The minimum lethal dose for white mice was found to be $10^{-10 0}$ suspension

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This study was supported by grants from Parke Davis & Company Detroit, and McCormick and Company Incorporated Baltimore

From the Section of Infectious Diseases Department of Medicine, University of Maryland School of Medicine research fellow in medicine (Dr Parker) third year medical student (Mr Lister) resident in medicine (Dr Bauer) assistant resident in medicine (Dr Hall) and associate professor of medicine (Dr Woodward)

Drs Arthur Y Milholland St. Michaels, Md Harold Grott, West Baltimore General Hospital Joseph J Bowen Mercy Hospital Baltimore and Joseph M Miller Veterans Administration Hospital Fort Howard Md supplied clinical material for this study Miss Ann Meredith and Mr Merrill J Snyder gave technical assistance

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O'Grady Bagg Swiss mice, weighing on an average 25 Gm., were inoculated intraperitoneally with 0.5 cc. of each tenfold dilution ranging from 10^{-2} to 10^{-12} inclusively. The primary dilution was prepared by washing a three day growth of Past. tularensis from blood glucose cystine agar with 1.0 cc. of sterile 0.85 per cent saline solution.

Antibiotic treatment was instituted immediately after infection. The antibiotic agents were administered intramuscularly every eight hours in the following doses: streptomycin 0.75 mg., aureomycin[5] 1.0 mg., and chloramphenicol[5] 1.25 mg. Therapy was continued for four days. Observations were terminated twenty-eight days after initiation of the experiment.

Experimental Results.—From the results (table 1) it is clear that mice treated with aureomycin or streptomycin had longer mean survival periods than either the chloramphenicol-treated animals or the untreated controls. Moreover, aureomycin protected animals inoculated with the heavier suspensions (10^{-2} to 10^{-7}) for a noticeably longer period than did streptomycin. In higher dilutions (above 10^{-8}) an appreciable number of mice treated with aureomycin and streptomycin survived at the end of the test. Under the conditions of the experiment, the mean day of death for chloramphenicol-treated animals was slightly longer than that of the control mice in all dilutions with which deaths occurred. This conforms roughly with previous results.[1]

Previous investigations at Parke, Davis & Company demonstrated in vitro sensitivity of Past. tularensis to chloramphenicol in the concentration of 0.4 to 10 micrograms per cubic centimeter.[6] On the basis of the knowledge of in vitro and in vivo activity of chloramphenicol against this organism, a clinical trial was undertaken.

TABLE 1.—*Chemotherapeutic Effect Obtained in Mice Infected with Pasteurella Tularensis*

Type of Drug	Mg./Day/ Mouse	Graded Dilution of Infectious Inoculum 2	3	4	5	6	7	8	9	10	11	12
Aureomycin	3.0	0/5*	0/5	0/5	0/5	1/5	0/5	1/5	3/5	5/5	5/5	5/5
Mean day of death		12.0	11.6	11.2	10.6	10.8	11.4	12.5	14	0	0	0
Streptomycin	2.25	0/5	0/5	0/5	0/5	0/5	1/5	0/5	2/5	4/5	4/5	5/5
Mean day of death		3.3	5.8	6.4	7.4	9.4	9.8	11.2	10.7	14	9	0
Chloramphenicol	3.75	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5
Mean day of death		2.1	2.2	2.5	3.8	4.1	4.6	4.3	4.8	5.4	7.9	7.4
Control	0	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	0/5	4/5	5/5
Mean day of death		1.7	1.7	1.9	2.3	2.6	2.9	2.9	3.8	4.4	3.7	0

* The numerator represents the number of surviving mice and the denominator indicates the number of mice used in the experiment.

CHLORAMPHENICOL IN HUMAN TULAREMIA

Selection of Cases.—Six patients comprised this series; 1 had primary pulmonic tularemia, 1 had glandular tularemia complicated with pneumonia and 4 had the ulceroglandular form of the disease. One patient (case 1) contracted the disease from an infected tick, and another (case 2) contracted the illness while working in the laboratory. The remaining 4 patients gave a history of having contact with wild rabbits (table 2).

Diagnostic Criteria.—In addition to the clinical characteristics of tularemia, all patients demonstrated a significant rise in titer of agglutinins for Past. tularensis (table 2). Pretreatment isolation of the causative organism was attempted in 4 cases by intraperitoneal inoculation of defibrinated blood into paired guinea pigs and into mice. All these attempts were unsuccessful. In 2 instances specimens of sputum obtained before institution of specific therapy were inoculated into experimental animals. One cubic centimeter of a 1:20 suspension of the supernate previously centrifuged at 500 revolutions per minute for five minutes was injected subcutaneously into guinea pigs. By this method, Past. tularensis was successfully recovered from 1 patient. The organism was cultured from the epitrochlear abscess of 1 patient (case 6).[7]

Method of Treatment.—The initial oral dose in 6 patients ranged from 2 to 3.5 Gm. with subsequent doses of 0.5 Gm. every four hours, except for 1 patient (case 2) who received 1.0 Gm. every eight hours. The average duration of therapy in the 5 acutely ill patients was 5.7 days. Toxic manifestations attributable to the antibiotic were not encountered.

Clinical Results.—Chloramphenicol treatment was instituted from the second to the twentieth day of disease, average 7.7 days. Early amelioration of the clinical symptoms was uniformly obtained, with improvement of headache, reduction of toxemia, increased strength and inclination to eat. The striking influence on the febrile course is shown by the average duration of fever (1.6 days) after initiation of therapy. Constitutional signs and symptoms disappeared in all cases after three days of treatment, and the patients looked and felt well.

Occurrence of Complications.—After the initial course of treatment 2 patients experienced a return of symptoms (cases 2 and 5), and 1 of these had a second return of fever. All the recrudescent episodes promptly responded when chloramphenicol therapy wa reinstituted. There were no other complications; at th time of writing all patients had been observed for thre months and had remained in excellent health.

TABLE 2.—*Tabulation of Serologic and Therapeutic Results* *Six Cases of Tularemia Treated with Chloramphenicol*

Case	Type of Disease	Age	Day of Disease Treatment Begun	Days of Treatment	Total Chloramphenicol (Gm.)	Duration of Fever After Start of Treatment	Relapse	Agglutinatio Acute	Conv
1	Ulceroglandular	53	6	7	23	1.5	No	Neg.	1:1,2
2	Pulmonary	27	6	5.3	18	1.5	Yes	Neg.	1:2,5
3	Glandular	39	5	4	15.5	1.75	No	Neg.	1:160
4	Ulceroglandular	53	7	7.8	25	1.75	No	Neg.	1:640
5	Ulceroglandular	35	2	5	18	1.5	Yes	Neg.	1:640
6*	Ulceroglandular	55	20	15	36.5		No	1:320	1:1,2

* This case will be reported in detail by Dr. Joseph M. Miller.

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[5] Aureomycin was supplied by the Lederle Laboratories Division n Cyanamid Company, New York, and chloramphenicol by Parke, Company, Detroit.

[6] [illegible] D. A.; Gruhzit, O. M.; McLean, I. W., J.

[7] This isolation was made by Dr. William B. VandeGrift, Veter

REPORT OF CASES

Case 1—*Tick-Borne Tularemia* (figs 1 and 2)—A white woman aged 53 removed a tick from her left flank one week before the onset of an acute illness characterized by nausea, headache, chills and fever When she was examined in the hospital there was left inguinal lymphadenopathy and an eschar, consisting of a central necrotic b[illegible] surrounded by a pink area on the left side of the ab[illegible]men at the site of the tick attachment (fig 1) Chlorampl[illegible]nicol treatment was instituted on the sixth day of disease, and within twenty-four hours the temperature returned to normal Improvement of the clinical symptoms was rapid, and the eschar healed promptly The course of disease and dosage of antibiotic are presented graphically in figure 2

Case 2—*Pulmonary Type of Tularemia*—A white man aged 27 (L M L) contracted tularemia while working with Past. tularensis in the laboratory The initial symptoms were intense headache, both temporal and occipital, pyrexia, decided photophobia and mild dysuria. The intensity of the headache was proportional to the elevation in temperature Examination revealed a fever (102 4 F) and signs of pneumonitis in the upper lobe of the left lung with rales and altered breath sounds A roentgenogram of the chest revealed an area of homogeneous infiltration in the left upper lobe Chloramphenicol therapy was started on the sixth day of disease with 3 Gm of the drug initially and 1 Gm. every eight hours After thirty-six hours, the patient became afebrile and the symptoms were completely abated. When the temperature had been normal four days, treatment was discontinued (total dosage 18 Gm) After four additional afebrile days the fever and symptoms returned, and on the seventeenth day of disease a second course of chloramphenicol was begun A total of 10 Gm of the antibiotic was given during this episode. Within twelve hours after treatment began the patient was completely asymptomatic A final febrile recrudescence occurred two days after the second course was stopped, and a third course of chloramphenicol, consisting of 18 Gm, was administered over seven days On this occasion there was complete defervescence in sixty hours Subsequently, roentgen examination revealed that the lung was completely cleared

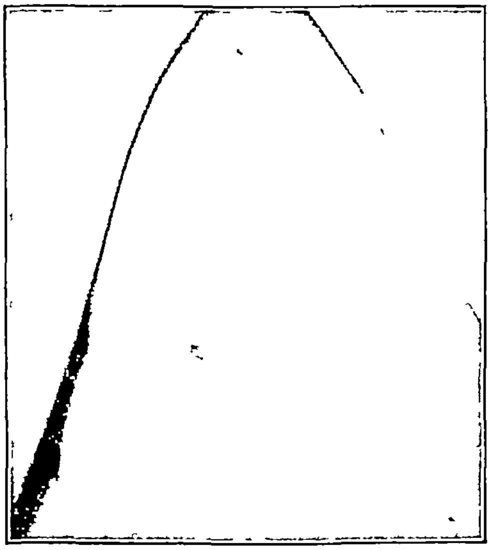

Fig 1 (case 1)—Primary lesion in a patient with ulceroglandular tularemia Tick bite occurred one week before onset of illness

Attempts to isolate Past. tularensis by inoculation of blood into animals during the primary and secondary phases of disease were unsuccessful The clinical diagnosis of tularemia was confirmed by the agglutination test, which was negative on the ninth day of disease and positive in the dilution of 1 2 560 on the forty-third day

[illegible] 3—*Glandular Tularemia with Pneumonia* (fig 3)—[illegible] man aged 39 contracted tularemia from wild rabbits [illegible]ced fever chills, intense frontal headache and weakness Physical observations were essentially normal except for a slightly large, tender lymph node in the left axillary region. A roentgenogram of the chest revealed a fine, patchy infiltration, 7 cm in diameter, involving the base of the lower lobe of the left lung Chloramphenicol therapy was started on the fifth day of disease and continued for four days In twenty-four hours the patient was more alert, the photophobia had diminished and the headache was greatly reduced Within seventy-two hours after the start of treatment there was complete amelioration of symptoms and the appetite had returned to normal The diagnosis in this patient was confirmed by isolation of Past. tularensis from sputum inoculated into guinea pigs and by the agglutination test, which rose in titer from negative on the twelfth day of illness to positive in a 1 160 dilution on the twenty-seventh day The course of disease is represented in figure 3

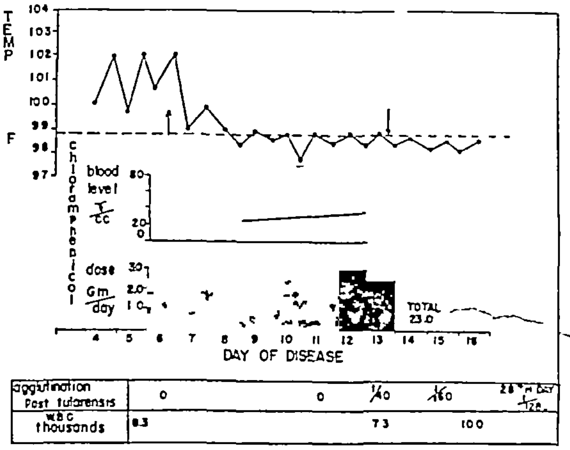

Fig 2 (case 1)—Clinical course of a patient with tick borne ulceroglandular tularemia treated with chloramphenicol

Case 5—*Ulceroglandular Tularemia* (fig 4)—A white man aged 35 contracted the disease from contact with wild rabbits The illness was characterized by chills, fever, headache and pain in the legs, arms and back On the second febrile day a necrotic lesion was noted on the middle finger of the left hand, and a walnut-sized node was detected in the corresponding axilla Chloramphenicol treatment was started on the evening of the second febrile day with an initial dose of 3.5 Gm and 0 5 Gm was given every four hours thereafter, for a

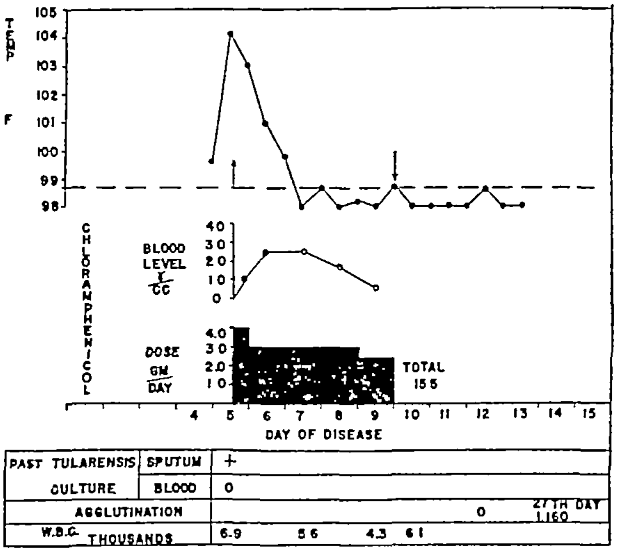

Fig 3 (case 3)—Chart of results in a patient with glandular tularemia complicated with tularemic pneumonia A total of 15 5 Gm of chloramphenicol was administered in four days total of five days The temperature reached normal levels thirty-six hours after the start of specific therapy After seventy-two hours the headache had entirely disappeared, with regression of the eschar, and the patient was asymptomatic After three days, during which the patient was afebrile without medication, there was a return of fever and the original symptoms On th , the eleventh, day of disease chloramphenicol therapy was reinstituted in the aforementioned dosage Within twelve hours the temperature returned to normal, and in twenty-four hours the patient was entirely free of symptoms The course thereafter was uneventful The clinical and significant laboratory observations are detailed in figure 4

COMMENT AND SUMMARY

Mice experimentally infected with virulent strains of Past tularensis are more effectively protected with aureomycin and streptomycin than by chloramphenicol treatment When series of inoculated mice receiving chloramphenicol are compared with untreated inoculated-controls it becomes evident that the antibiotic slightly prolongs the survival period One would conclude, therefore, that in the mouse chloramphenicol is less effective than either aureomycin or streptomycin as a therapeutic agent It is not considered justifiable, however, to infer from these results *in mice* that results would be identical in the human disease We have therefore treated 6 patients with human tularemia with chloramphenicol the results further emphasize the fallacy of predicting human results from animal response to an antibiotic It will be recalled that the earlier in vivo testing of chloramphenicol showed that it was relatively ineffective in testing mice inoculated with Salmonella typhimurium,[8] a result which was discouraging as to its probable effects in human Salmonella infections Nevertheless, it has been demonstrated that chloramphenicol is an effective therapeutic agent in human infections due to Salmonella typhosa [9]

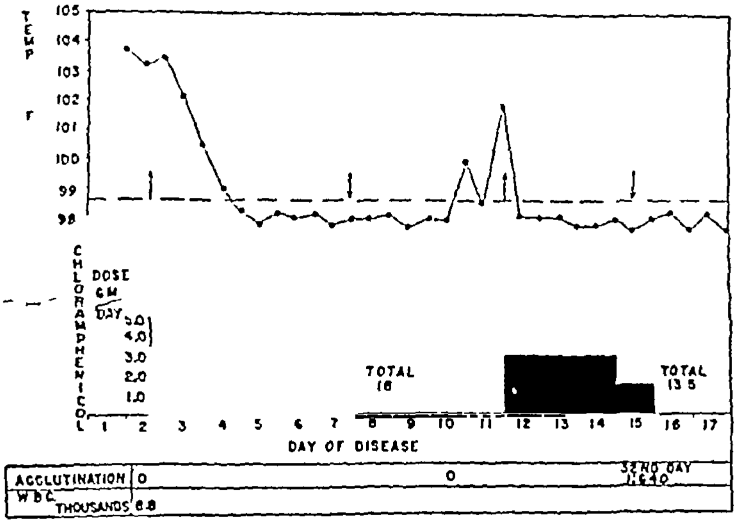

Fig 4 (case 5) —Clinical response of a patient with ulceroglandular tularemia whose chloramphenicol therapy was started on the second day of disease Relapse responded to a second course of the drug

There are many pitfalls in assessment of the therapeutic effect of an antimicrobial agent in a disease such as human tularemia, the course of which is notoriously variable in its clinical manifestations The disease may vary from a mild subclinical infection, as seen in certain patients with the ulceroglandular form, to overwhelming septicemia often with pneumonia and death in a few days The pulmonary form of tularemia with a severe clinical course and an expected mortality rate varying from 30 to 40 per cent [10] is better adapted for evaluation

Streptomycin is unmistakably a potent chemotherapeutic agent in the treatment of experimental and clinical tularemia The clinical response with this antibiotic in all forms of the disease is prompt and dramatic [11] Aureomycin is a second antimicrobial agent which exerts similar activity in experimental and human tularemic infections, although its clinical application is still somewhat limited [4]

Now chloramphenicol, another antibiotic, appears to influence favorably and promptly the course of human tularemia In 5 acutely ill patients treated on an average of the fifth day of disease the temperature returned to normal in less than two days, but disappearance of headache and return of strength and appetite were delayed for another day This group included 2 patients with pulmonary manifestations of tularemia who experienced striking relief of symptoms within two days *In 3 patients (cases 1, 4, and 5) with the ulceroglandular form of the disease there was rapid healing of the primary lesions, and the involved lymph nodes did not progress to obvious suppuration*

Two relapses in this small series of cases are worthy of note The recrudescent disease in each instance responded dramatically to a second course of chloramphenicol therapy, which strongly suggests that Past tularensis does not readily acquire resistance to the antibiotic Relapses have been noted in patients treated with streptomycin [11a] With respect to a tendency toward recrudescence, a similarity to the experimental observations is noted Larson and Ransmeier [3] have frequently observed that mice inoculated with high concentrations of Past tularensis eventually succumb to the disease when antibiotic therapy is terminated One would hypothecate, therefore, that administration of chloramphenicol early in the course of disease does not completely free the host of Past tularensis at a time when the immune response is sufficient to insure against relapse In this respect the tendency to relapse is similar to results obtained with chloramphenicol therapy of patients in the early stages of tsutsugamushi disease (scrub typhus) [12]

It is considered that the evidence here presented, although admittedly limited, indicates that chloramphenicol, in addition to its previously demonstrated effectiveness in many types of disease, is of distinct benefit in the treatment of human tularemia Until there is an opportunity for wider clinical experience, it is suggested that therapy consist of an initial 3 0 Gm dose followed by 0 5 Gm every four hours for five to seven days To insure against complicating relapse, an additional three days of treatment after an interval of two days may be helpful

CONCLUSION

Results obtained in 6 cases of tularemia treated with chloramphenicol (chloromycetin®) indicate that the antibiotic is an effective agent in this disease In experimental mouse infections the results were not nearly so striking

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ADDENDUM

In case 5 suppurative adenitis developed on the seventieth day of disease The gland was incised and drained Bacteriologic studies, including animal inoculation of the purulent material obtained, were negative for Past tularensis and other pathogens

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THERMAL COAGULATION OF SERUM IN DIAGNOSIS

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The coagulation of protein by heat has long been accepted as a useful diagnostic aid in the recognition of albumin and Bence Jones proteins in the urine During some studies of cancer in man several new methods were devised whereby certain abnormalities of the proteins in the blood may be recognized by thermal coagulation, these changes are hypoalbuminemia, abnormal serum albumin and considerable increases of gamma globulin The changes are not characteristic of cancer, although one or more of them is often associated with malignant disease Abnormal tests of thermal coagulation of serum signify a disturbed bodily state, they indicate disease but do not reveal its specific nature The methods are attractive from the standpoints of simplicity and reproducibility, and we have found them useful in diagnosis and prognosis

According to Mirsky and Pauling,[1] native protein molecules are maintained in a folded configuration by hydrogen bonds When an aqueous solution of protein is heated these bonds are broken, causing an unfolding of the molecule and insolubility in water, this process is known as denaturation It has been postulated that the molecules of the denatured protein become linked together to form a coagulum through new hydrogen bonds between carboxyl and amino groups of neighboring extended polypeptide chains Heated egg white and, no doubt, coagulated serum proteins as well consist of parallel bundles of elongated polypeptide chains forming a gel[2]

A gel consists of a cross linked, three dimensional network of long molecules which is capable of binding a large amount of solvent within its framework For any given volume of solution, there is a minimum number of protein molecules required to build a network which can hold all the water that is present If the protein concentration is less than this critical amount, the solution after heating will remain liquid Determination of this minimum or "least coagulable concentration" value for individual serum samples is one of the tests described in this paper

It will be shown that gel formation in solutions of blood serum depends chiefly on the albumin content influenced somewhat by the gamma globulin present It is clear that if an abnormally small number of albumin molecules are present the serum cannot be diluted as far as can a normal serum before the least coagulable concentration is reached Low albumin values are encountered in many diseases, all decreases of this type having clinical significance are readily detected by the present diagnostic system Decreased albumin can be recognized by standard quantitative chemical methods, although it is difficult to obtain precise values with the available technics

In addition to abnormalities in quantity we have been able to show that serum albumin often is present in essentially normal amounts but is changed in qualitative manner, this abnormal albumin is easily demonstrated by determining the least coagulable concentration in terms of the quantity of albumin present Abnormal albumin is defined as albumin in which chemical reactivity is importantly different from the normal

A qualitative abnormality in serum albumin was established in two ways, namely, by its defective thermal coagulation[3] and by deficient binding of dyes[4] Serum albumin is remarkable for the fact that it can attract and hold small molecules with a negative charge such as anionic dyes, sulfonamide compounds and penicillin although the albumin itself at neutrality has an over-all negative charge Frequently serum albumin in jaundice,[5] nephrosis[6] and cancer[4] has a deficient capacity for the binding of negatively charged dyes In serum samples from persons having cancer with low binding values of albumin for phenolsulfonphthalein the protein molecule is not intrinsically defective, it can be restored to its normal values by isolation using cold ethyl alcohol fractionation, although it is unaffected by simpler treatments such as dialysis It is our opinion that the albumin has associated with it abnormal bound groups, presumably of anionic character, which are soluble in ethanol and that these associated groups interfere with aggregation of denatured protein chains resulting in defective thermal coagulation

It will be demonstrated that gamma globulin and albumin produce different types of coagula when subjected to heat, this difference is the basis for recognition of increases of gamma globulin by thermal methods

HISTORICAL DATA

Previous investigations of thermal coagulability as a diagnostic aid have been confined to the measurement of the temperature at which serum coagulates By this determination results of limited value were obtained, but these methods have been abandoned because of the lack of a theoretic basis for relating the point of thermal coagulation to the proteins in a quantitative way

Belak[7] and later Muller[8] found that normal human serum coagulates between 73 and 75 3 C Mayer[9] and Rosenow[10] observed that some serum samples had a decidedly increased temperature of coagulation, especially in nephritis These observations were confirmed by Glass,[11] who observed that increases of this value

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This study was aided by grants from Mr Ben May Mobile Ala and from the American Cancer Society recommended by the Committee on Growth of the National Research Council

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concentration was 1 17 to 2 47 Seventeen patients with cancer (15 per cent) had values of 1 38 or less (table 2), while the others had abnormally high values

C Diseases Other Than Cancer A wide variety of diseases was encountered in this group of 133 patients There were 88 patients (66 2 per cent) whose values fell in the normal range of 1 38 or less, 45 patients (table 3) had abnormally high values In addition samples of the serum of 91 pregnant women were examined In 54 patients the value was more than 1 38, the duration of the pregnancy in all these patients was twelve or more weeks In 10 of the women the pregnancy was eight weeks or less, and in each instance the least coagulable concentration was always less than 1 38

TABLE 2—*Least Coagulable Concentration of Serum Protein, Seventeen Patients with Cancer with Values in the Normal Range*

No	Diagnosis	Total Protein, Gm / 100 Cc	Least Coagulable Percentage of Serum	Least Coagulable Protein Concentration
1	Small carcinoma, sigmoid	6 49	18	1 17
2	Stem cell leukemia	4 34	27	1 17
3	Osteosarcoma, femur	7 61	16	1.22
4	Carcinoma prostate, untreated	8 15	15	1 22
5	Carcinoma, rectum metastases	6 81	18	1 23
6	Fibrosarcoma, recurrent	6 96	18	1 25
7	Carcinoma, tongue	6 06	21	1 27
8	Hypernephroma metastasis	6 69	19	1 27
9	Carcinoma stomach	6 69	19	1 27
10	Carcinoma, cecum	6 75	19	1 28
11	Chondrosarcoma, large	7 32	18	1 32
12	Carcinoma, sigmoid, small	6 32	21	1.33
13	Carcinoma, bladder	7 37	18	1 33
14	Carcinoma metastatic primary undetermined	7 07	19	1.34
15	Carcinoma, stomach	6 28	22	1 38
16	Carcinoma, stomach	6 90	20	1 38
17	Carcinoma, rectum	6 00	23	1 38

TABLE 3—*Least Coagulable Protein Concentration in Nonmalignant Diseases*

	Values of 1 38 or Less Number of Cases	Values of 1.39 or Greater Number of Cases
Gastric ulcer	3	3
Duodenal ulcer	11	5
Ulcerative colitis	3	4
Hepatitis and cirrhosis	4	9
Nephrolithiasis	12	3
Uremia	1	3
Benign tumors	13	1
Benign prostatic hypertrophy	14	2
Hypertension	4	4
Miscellaneous	23	11

Also serum samples of 15 patients not having cancer were examined before and after major surgical operations such as nephrectomy and herniotomy, in all cases the least coagulable protein concentration rose above 1 38 within forty-eight hours after the operation In each of these patients the value had returned to normal within the next fifty days

3 *Qualitative Test for Gamma Globulin*—The qualitative test for gamma globulin was made on 120 serum samples, of which 20 were from normal persons All of the serums from healthy persons became opalescent when heated The average value for gamma globulin in serum obtained by Seibert and associates[23] was 1 05 Gm per hundred cubic centimeters, we found that gamma globulin values of the order of 2 Gm or more per hundred cubic centimeters gave a positive test

In this series of patients with disease there were 21 instances of multiple myeloma Seven of these patients had Bence-Jones protein in the urine, the serum of 1 of these developed dense turbidity on heating, while 6 samples were opalescent as observed in the serum of normal persons Fourteen of the patients with myeloma had no demonstrable Bence-Jones proteinuria, the serum of 12 of these had dense cloud formation in the test with flocculation of visible particles (fig 3), but in 2 instances the serum was water-clear after heating There was corroboration of the diagnosis in all of the patients with an increased amount of gamma globulin as determined by electrophoresis

Of the remaining patients with disease, the serum of 2 patients both having gastric cancer remained water-clear after testing There were 4 patients with a clinical diagnosis of hepatitis, and serum samples of all 4 had dense cloud formation, in 2 patients with great increases of gamma globulin from unknown cause the test was strongly positive In 71 cases the test was normal

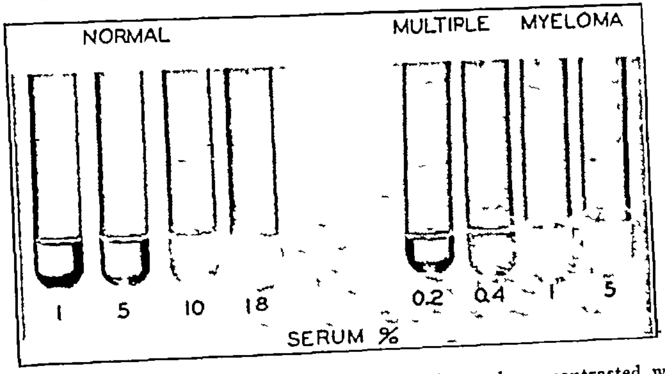

Fig 3—The serum of a patient with multiple myeloma contrasted with normal serum after dilution with phosphate buffer and heating for two minutes The myeloma serum contained 4 2 Gm of gamma globulin in 100 cubic centimeters of serum as determined by electrophoretic analysis

COMMENT

It is scarcely possible to overemphasize the significance of protein metabolism in cancer Proteins are involved in the malignant cell itself in an important manner for example, the enzymes are proteins, and chromosomes and also the rate-determining factors of the cell are composed of combinations of nucleic acids with protein Further, the presence of cancer in an organism induces changes in proteins in distant tissues Among other recognized changes are decreases in the amount of hemin-containing proteins such as hemoglobin and the enzyme catalase of the liver and kidney[24] Cancer frequently results in decreased quantities of albumin in the serum[25] as well, although the changes may not be significant until late in the disease Often more evident are changes in the type of albumin as manifested by its decreased binding of anions, the decreased requirement of iodoacetate to prevent coagulation and the changed character of thermal coagulation described in this paper

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The changes in the albumin detectable by thermal coagulation are not specific for cancer, they occur in a wide variety of disease, they constantly accompany the latter two thirds of pregnancy and they follow operative trauma of magnitude Deficient thermal coagulation, however, was found to be present in 85 per cent of the serum samples from patients with cancer in this series

It is of interest that often a rather small cancer may cause changes in the serum protein values exceeding in magnitude those related to the great growth processes of advanced pregnancy It is also remarkable that advanced cancer is occasionally unaccompanied with serum protein changes Changes in serum albumin no doubt serve to characterize various types of malignant processes

When confronted with a serum sample with abnormal thermal coagulative characteristics, it is impossible for the analyst to make a diagnosis of cancer The data must be interpreted in connection with other evidence Serum coagulation may be regarded as a screening device for protein metabolism somewhat comparable to other indexes such as the erythrocyte or leukocyte counts or measurements of sedimentation rate, it is supplementary to those procedures, however, and has no correlation with them It may be stated categorically that whenever a serum fails to coagulate in 21 per cent concentration or greater an abnormality of serum proteins is present In spite of the lack of specificity of the methods we have found thermal coagulation tests to be of great aid in the detection of serious disease in clinical cases, moreover, when abnormal observations do not improve after therapy, the prognosis is unfavorable

The least coagulable percentage of serum proteins in this paper is related to the total protein content rather than to the albumin value because the methods for determining total proteins are precise and the information gained is clinically useful Except for electrophoretic technics the present methods for determining the quantity of albumin in serum are unsatisfactory, with neutral salt fractionation, as in Howe's method, the "albumin" value is as much as 39 per cent higher[26] and with the Pillemer and Hutchinson[19] methanol method 5 to 10 per cent greater than values obtained on electrophoresis, since both methods usually include some alpha globulins in the albumin fraction

Thermal methods have been extensively used in the diagnosis of multiple myeloma since Bence Jones described the unusual solubility characteristics of protein on heating the urine of a patient with this disease The globulin test described in this paper enables the recognition of other types of this disease A relatively common type of multiple myeloma associated with increased gamma globulin in the serum[27] is seldom associated with Bence Jones protein in the urine At the present time increases of gamma globulin may also be measured by electrophoresis and by the method of Kunkel,[28] which depends on the precipitation of this protein by heavy metals To these may be added thermal coagulation, which we find useful as a qualitative test Needless to say, great increases of gamma globulin also occur in diseases other than multiple myeloma

SUMMARY

Of fractions of human serum only albumin and gamma globulin form gels when heated under the conditions specified

Clinically significant deficiencies of serum proteins are readily recognized by thermal coagulation Relation of the rigidity of the coagulum induced by heating diluted serum to its protein content is a simple and reproducible method for detecting abnormal levels of serum albumin in clinical patients This test is not specific for cancer It yields abnormal results constantly in advanced pregnancy and frequently after a major surgical operation and in certain other diseases Abnormal results were obtained in 85 per cent of a consecutive series of patients with cancer, however, cancer may exist in advanced stages without changes in the serum proteins detectable by this method

By virtue of the thermal coagulative characteristics of gamma globulin considerable excesses of this material are detectable by heating dilute serum for a short time

Despite the lack of specificity for designation of disease, thermal coagulative methods of investigation of serum proteins when properly interpreted are of value in clinical diagnosis and prognosis

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OXYCEPHALY

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Oxycephaly consists of a group of congenital deformities resulting from a premature closure of the bony vault of the skull The outstanding feature is a tower-shaped head Developmental anomalies of other parts of the body are frequently associated Because of the numerous ocular observations, the ophthalmologist sees many of these cases Other names for this condition are acrocephaly, steeple skull, tower skull, turricephaly and *Turmschädel* The "Quarterly Cumulative Index Medicus" uses the term acrocephaly Oxycephaly is occasionally associated with syndactyly and is then known as acrocephelosyndactyly, or Apert's syndrome Oxycephaly is rare Valentin[1] in 1938 reviewed the world literature and could account for only 90 cases Over the past three years only 1 case has been detected in over 5,000 new admissions to the eye service of Dr Walter V Moore at the Brooklyn Eye and Ear Hospital

OBSERVATIONS IN OXYCEPHALY

Skull—The changes in the skull represent the most outstanding features of the syndrome The head may appear as simply tall or elongated to a relatively sharp point at the top—the so-called steeple skull Peter[2] reported 4 soldiers of the recent war with mild oxycephaly Their only complaint was discomfort in wearing the service helmet The forehead, broad and normal appearing, occasionally belies the underlying mental deficiency The anteroposterior diameter is greatly shortened The sides of the head may bulge rather than present the shallow depressions of the temporal fossae There is occasional flattening of the facial bones, with loss of buccal prominence The jaw appears prognathic by contrast The palate is frequently high, foreshortened and deformed into corrugations Grossly maloccluded teeth may grow down from it without semblance of order

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Read before the Brooklyn Ophthalmological Society April 21 1949

From the Departments of Ophthalmology of the Brooklyn Eye and Ear Hospital and the Long Island College Hospital

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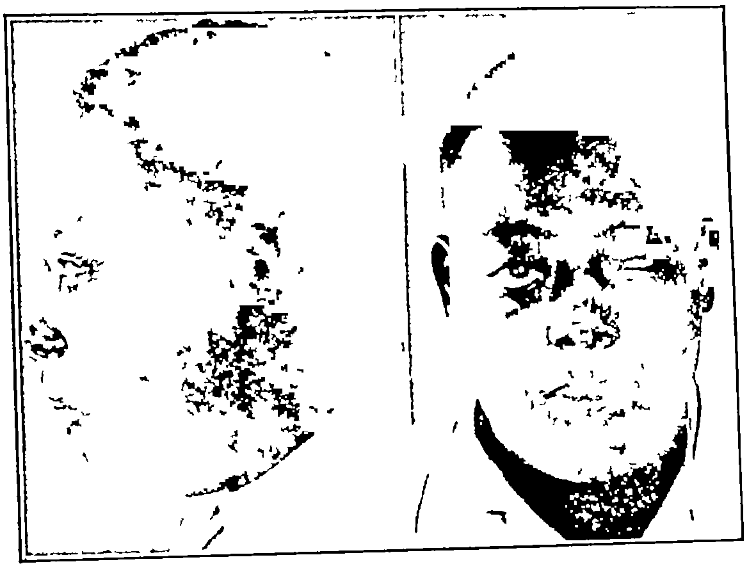

Fig 1 —Side and front views of patient M W with oxycephaly

Much aberration is found in the bony foramens of the skull Many of these are not only distorted but constricted as well The effect on transmitted vessels, nerves and other structures can be easily imagined The optic foramens and canals are frequently involved The anterior fontanel may remain widely open throughout life—acting as a safety valve to prevent cerebral compression Patent parietal foramens may also be present

The roentgenologic appearance of the skull is diagnostic, especially if lateral as well as anteroposterior views are taken The tall, thin-boned calvarium with its short sagittal diameter shows numerous saucer-like concavities on its inner table These digital depressions supposedly represent convolutions of the brain They resemble the surface of beaten silver greatly magnified The vessel markings are deeply etched Bony suture lines may be completely obliterated, and the orbits may be compressed to resemble a flattened letter C The floor of the middle cranial fossa may be pushed down to the level of the posterior fossa The anterior fossa is shortened and distorted

Spine—Fusion of the vertebrae and other malformations of the spine are not uncommon On occasion fusion is associated with brevicollis, it is then known as the Klippel-Feil syndrome Roentgenograms of the cervical vertebrae show that the shortening of the neck is due to the vertebral fusion

Extremities—Syndactyly and arachnodactyly have been found associated with oxycephaly The syndactyly (Apert's syndrome) may be mild or almost complete Fusion of the digits may involve all four extremities When this is pronounced it can be "simulated by thrusting the hand into the toe of a tight stocking" [3] Cohen [4] reported the effects of surgical intervention on such extremities, by means of which some cosmetic and functional improvement was obtained Malformations have also been noted at the elbow and shoulder joints, radiuses, ulnas and other long bones [5] These deformities are usually bilaterally symmetric

Mentality—Mental deficiency is occasionally associated with oxycephaly Many persons, however, attain proper mental development in spite of the deformity Sirkin [5] reported a white male with an intelligence quotient of 22 Feeblemindedness when present is probably due to an inability of the brain to develop within a constricting bony vault

Ocular Observations—Ocular disease is so constant in oxycephaly that few of these patients escape an ophthalmologic examination The most remarkable ocular observation is exophthalmos This may be mild or extreme It is probably caused by the inability of the shallow orbit to house the globe Lagophthalmos and corneal ulceration may be complicating factors [6] Sherne [7] reports a case of complete forward dislocation of the eyeball in a child 8 months of age Strabismus is almost always present and is usually of the exotropic type This is apparently due to the displacement of the axes of the orbits Occasional cases of esotropia are found with oxycephaly

Optic atrophy is a common observation in fully advanced cases of oxycephaly The atrophy may be of the primary or secondary type Peter [2] has given the following causes for the destruction of the nerve in oxycephaly (1) narrowing of the bony optic foramen, with resultant pressure on the nerve, (2) pulling on the optic nerve due to malformation of the middle cranial fossa, (3) increased intracranial pressure as the result of growing soft structure within a diminished calvarium, (4) stenosis of the foramens transmitting blood vessels which nourish the optic pathway, and (5) abnormal carotid arteries, which may press on the optic pathway Regardless of the cause of the optic atrophy, it is almost always associated with poor vision or blindness Abeles [8] reported oxycephaly associated with medullated nerve fibers in several cases Coloboma of the iris has been noted

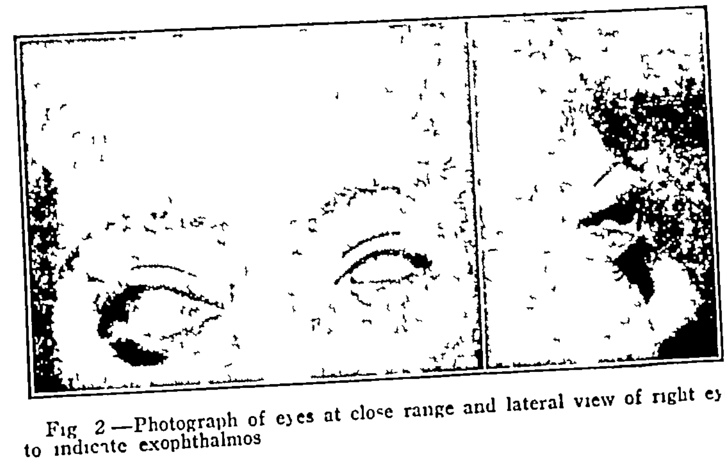

Fig 2 —Photograph of eyes at close range and lateral view of right eye to indicate exophthalmos

Prognosis—In most patients with extreme oxycephaly blindness results from optic atrophy However, the life span of these persons may be completely unaffected, assuming that no accident accrues from idiocy or faulty vision

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Etiology—The cause of oxycephaly is not known It is known, however, that heredity is not a factor Two theories have been advanced to explain the cause of oxycephaly Bronfenbrenner[9] expressed his belief that oxycephaly may be due to some change in the chemical composition of the amniotic fluid Park and Powers[3] stated that the condition is due to defect of the germ plasm The latter theory seems to be more widely accepted at present

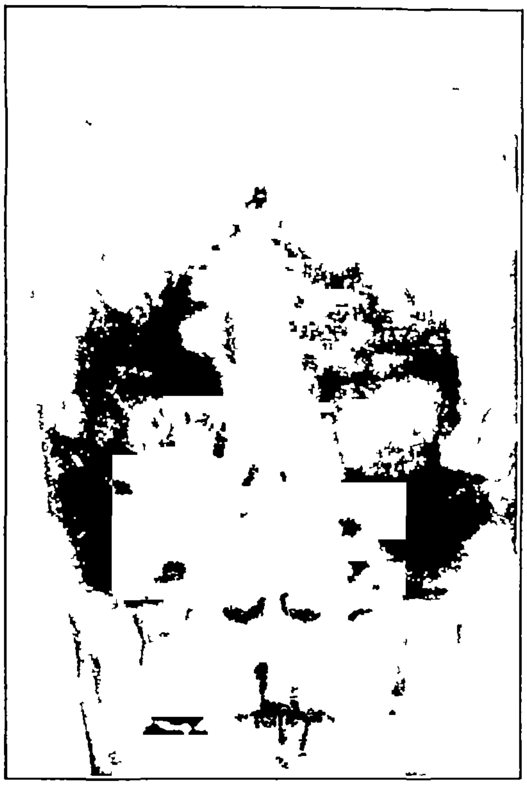

Fig 3—Roentgenogram of skull in oxycephaly (anteroposterior view)

Pathogenesis—Because of unknown factors there is an early fusion of the sutures of the calvarium during embryonic life This leads to malformation of the skull and a lessening of its normal capacity for soft tissues The contents of the calvarium, as they increase in size, are forced to push in any direction that will yield to pressure The growing cranial contents may compress the orbits to less than one-half their normal depths, pushing the eyeballs forward from their sockets Downward tension depresses the floor of the middle fossa at the same time that the palate and nasal septum are foreshortened and distorted Upward pressure produces the characteristic tower shape of the skull, indentations on its inner table and diminution of its thickness Pressure in all directions produces stenosis of the many foramens of the skull, notably the optic and jugular openings

Differential Diagnosis—Crouzon's disease (dysostosis craniofacialis) resembles oxycephaly in many respects One of the chief differences observed is that in the former the skull is enlarged in its lateral rather than its vertical diameter Also, Crouzon's disease is hereditary but oxycephaly is not In spite of these distinctions some confusion exists, and at least one author[4] considers the two conditions the same

Paget's disease of bone (osteitis deformans) may resemble oxycephaly in that there may be an enlargement of the skull, exophthalmos and optic atrophy However, Paget's disease occurs in persons past middle life, is associated with characteristic changes in the long bones and produces conditions which may be diagnosed by roentgen studies These show decided thickening of the skull plate (in contradistinction to oxycephaly) and practically all other bones

Schuller-Christian-Hand disease (xanthomatosis) produces exophthalmos and optic atrophy and occurs in young children It differs from oxycephaly in that it is not congenital, is associated with patches of decalcification of the skull (roentgen observation), does not produce the characteristic tower skull and is accompanied with diabetes insipidus

Treatment—From the nature of oxycephaly there is little that can be done therapeutically once the condition is matured However, early resort to neurosurgical procedures such as decompression operations and repeated lumbar punctures may avoid the dreaded consequences of intracranial hypertension

REPORT OF CASE

History—M W, a Negro boy 10 years of age, was examined at the eye service of Dr Walter V Moore of the Brooklyn Eye and Ear Hospital in 1943[10] His complaint at that time was poor vision in both eyes His sight had been decidedly deficient since birth, but the vision in his left eye had been impaired even further as the result of an injury in 1942 At that time an object thrown at him had broken his spectacles and lacerated the globe. A conjunctival flap had been formed to save the eye After this operation, phthisis of the eyeball resulted with loss of light perception The patient returned to the clinic on Jan 25, 1949, at the age of 16 with the hope that something could be done to cure his blindness During the six year interval between visits there had been no remarkable change in his eyes

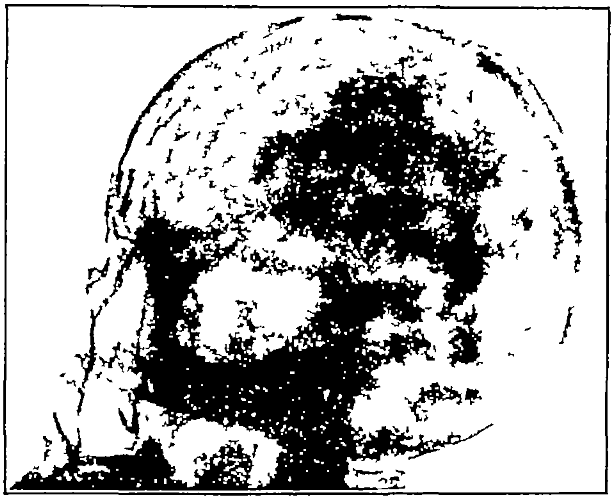

Fig 4—Lateral view of skull in oxycephaly

Family History—There was no history of oxycephaly among any of the relations of the family Nor did any of these persons possess any deformity which could be construed as congenital No one in the family had grossly defective vision The mother could recall no illness during her pregnancy

Past History—The patient had been born without obstetric hardship and had thrived normally The usual childhood diseases had been weathered without complication He was mentally alert and when last seen was a third year student at the high school of the New York Institute for the Blind.

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[9] Bronfenbrenner A N A Case of Skull Deformity Related to the the So-Called Acrocephalosyndactalia Psych 6 612 1932

[10] Dr Walter V Moore gave me permission to report this case from his clinic.

Present Illness—At birth the patient was noted to have a tower-shaped head and prominent eyes However, little attention was paid to these characteristics As development proceeded, it was noted that the child was unable to see the ordinary objects about him Corrective lenses for a moderate myopia seemed to help somewhat, but vision remained much below normal The tower-shaped skull and bulging eyes became somewhat more prominent as he grew older

Physical Examination—General physical examination and laboratory tests of a healthy Negro boy aged 16, who was well adapted to his surroundings, revealed grossly normal conditions except for the following observations

Head (fig 1) The diameters of the head were 6⅛ inches (15 5 cm) anteroposteriorly by 5¾ inches (14 8 cm) laterally, a cephalic index of 95 5[11] The frontal bosses were prominent

Eyes (fig 2) Vision of the right eye was limited to light perception The globe was moderately proptosed, with the vertex of the cornea 22 mm anterior to the lateral orbital margin (Luedde exophthalmometer) The pupil measured 4 5 mm and reacted with moderate speed to light A searching nystagmus of moderate amplitude was present The fundus showed an optic atrophy of mixed type Above and temporal to the disk an elongated, slightly irregular crescentic white lesion resembled in color, size and shape an old rupture of the choroid

In the left eye light perception could not be elicited The globe was phthisic with a degenerative pannus completely opacifying the cornea An old conjunctival flap adhered and covered the lower sixth of the cornea The vertex of the cornea was 17 mm anterior to the lateral orbital margin (Luedde exophthalmometer)

Roentgenograms of the Skull (figs 3 and 4) —The roentgen observations were typical of oxycephaly The anteroposterior diameter of the skull was shortened as compared to the lateral The skull was unusually thin and showed the numerous digital compressions frequently seen in oxycephaly The vessels of the calvarium coursed in deeply etched channels The orbits were reduced in depth to about one-half their normal dimension The middle cranial fossa was on a level approaching that of the posterior fossa

COMMENT

A case of oxycephaly is reported in a young Negro The outstanding features are to be found in the skull, roentgen studies and changes of the eyes The cephalic index[11] of the patient is 95 5 According to Cunningham[12] a cephalic index of 75 or less denotes a dolichocephalic or long, skull and is characteristically found among Negroes The short skull which has a cephalic index of 80 or more is known as brachycephalic and is seen among American Indians The medium length head, or the mesatocephalic skull, has an index of 75 to 80 and is characteristic of Caucasians

Obviously the patient had an extremely shortened head, which becomes more apparent when we realize that the average Negro has the dolichocephalic type of skull A cephalic index of 95 5 would be excessive even for the normal brachycephalic person

When one considers the mixed types of atrophy present in the right eye one is inclined to speculate as to its cause Papilledema produced by increased intracranial pressure plus depressed nutrition somewhere along the optic pathway may have conspired to achieve the mixed result noted What effect might have been obtained by early decompression of the calvarium during infancy will always remain unknown

One finds it difficult to conciliate such gross bony compression of the skull with a normal development of cerebral tissue The fact that the boy is a third year high school student at the age of 16 certainly indicates that he is of normal intelligence Functionally, at least, the anterior lobes of the brain must be normal The role of injury to the eyes of oxycephalic persons is forcibly demonstrated in this case The proptosis coupled with faulty vision certainly would seem to predispose these eyes to trauma It would be difficult to imagine a more vulnerable set of circumstances for an eye

SUMMARY AND CONCLUSIONS

A brief review of some of the more outstanding articles on oxycephaly is presented

A case showing typical oxycephaly with optic atrophy is reported

349 Eastern Parkway (16)

Special Article

THE MEDICAL DEPARTMENT OF THE ARMY

Current Status Report

MAJOR GENERAL GEORGE E ARMSTRONG
Deputy Surgeon General, United States Army

In a discussion of the current status of the Army Medical Department, it is necessary to consider factors both within the department itself and at the level of the Secretary of Defense

RECENT DEVELOPMENTS

Several important steps have been taken since last year which have a direct bearing on the status of the Army Medical Department at the level of the Secretary of Defense One of these has been the implementation of certain of the recommendations of the Committee on Medical and Hospital Services of the Armed Forces (known as the Hawley Board), whose principal function was the devising of ways and means of conserving medical manpower while still maintaining the standards of efficiency that are deemed necessary One of the recommendations of this committee resulted in the closing of four Army general hospitals, the reduction of two others to station hospital status and the further reduction of forty-eight Army station hospitals and Navy dispensaries to "Army" type dispensaries, thus saving the Medical Departments some 7,000 odd beds through the consolidation of inpatient treatment in fewer hospitals

Another step was the creation, by the late Secretary Forrestal, of the Medical Advisory Committee within his office, headed by Mr Charles Cooper, formerly executive vice president of the American Telephone and Telegraph Company and chairman of the Board of Trustees of the Presbyterian Hospital of New York for the past twenty-five years This committee, comprised of several outstanding civilian physicians and dentists and the three surgeons general was charged primarily with ascertaining the most efficient means of utilizing the medical manpower made available to the military establishment and evaluating the requirements that those responsible for the Medical Department give forth as minimum needs

The third major step was the establishment on May 12, 1949 of an office of the Director of Medical

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[11] Cephalic Index = $\frac{\text{Width of head}}{\text{Length of head}} \times 100$

[12] Cunningham D J Cunningham's Textbook of Anatomy, edited by A Robinson New York Oxford University Press, 1931, p 305

Presented by Major Armstrong before the Annual Meeting of the Association of Military Surgeons of the United States in Washington D C Nov 10, 1949

Services of the Armed Forces by direction of the Secretary of Defense One may best explain the responsibility of this office by quoting from the directive which created it

> (*a*) Establishment and control of general policies standards and programs for the medical services of the three military departments and appropriate agencies of the National Military Establishment
>
> (*b*) Exercise general direction, authority and control over administration and utilization of personnel and facilities of the medical services of such departments and agencies through the heads thereof
>
> (*c*) Such other duties with respect to the Medical Services of the National Military Establishment as the Secretary of Defense may direct

The decision to create such a directorship was reached as a result of a recommendation of the Cooper Committee, one of whose principal studies to date has dealt with the subject of how best to "unify" the medical services of the Defense Establishment After interviewing scores of civilian and military leaders both in and out of the medical profession and laying aside such alternatives as the creation of a single medical service for Army, Navy and Air Force the final recommendation was reached which created the office I have just mentioned Incidentally, with the establishment of the office of Medical Director, the Cooper Committee was reconstituted as a permanent medical advisory council and the military members were omitted from its panel

On July 6 Dr Raymond B Allen, president of the University of Washington at Seattle, was sworn in as the first director of the Medical Services Division At the same time Dr Richard L Meiling of the Ohio State University School of Medicine was sworn in as deputy director, subsequently, when Dr Allen returned to his position as president of the University of Washington, Dr Meiling was appointed director

During this period of readjustment the Hawley Board was reactivated and the Air Force obtained its own separate Medical Department, thus, at the Washington level, the military medical picture is as follows the Medical Services Division, Office of the Secretary of Defense, the Secretary's Medical Advisory Council, and the three Medical Departments

From July 6 until October 1, Drs Allen and Meiling together with the three surgeons general visited almost every medical installation operated by the Armed Forces in the Zone of the Interior, the Caribbean and European commands In their travels they discussed the current medical situation with both medical and nonmedical personnel They have had briefings on all echelons by Army, Navy and Air Force planners as to both peacetime and wartime objectives I believe that no group could be better prepared to guide the medical destinies of the armed forces In order to achieve realistic consideration continuously of all appropriate recommendations and for discussion as to progress in the implementation of adopted policies, the director holds biweekly meetings with surgeons general, after which the latter carry out agreed operational activities Through these mediums real unification is being achieved in the medical services

SUPPLY OF PROFESSIONAL PERSONNEL

Within the Army Medical Department many things have occurred that will be of interest Last year the department was in serious straits regarding personnel There seemed to be no solution to the problem of how to meet a growing demand without sufficient supply This situation has not been completely eliminated, but certain developments which have come about through the combined efforts of the civilian and military members of the medical profession have eased the situation with regard to professional personnel

The first factor was not of the medical department's own making Previously requirements were geared to an Army of 887,000 men The joint chiefs of staff reduced this figure to 667,000 men, thus medical needs were obviously not as great Second, a system of joint staffing was put into effect in many Army hospitals in conjunction with the Navy and now, of course with the Air Force, with a resultant saving of personnel Third, reduction in the number of activated installations saved 7,000 beds, as I mentioned earlier Fourth, through a special dispensation of the Army General Staff the medical department is permitted to invite Reserve medical and dental officers to come on active duty for short tours—as short as one day in the United States and as short as six months in overseas areas Civilian personnel ceilings have also been granted, which stop only when the over-all requirements have been met so that professional men can be hired on a full time or part time basis Fifth, the utmost cooperation has been received from those in civilian medical practice, and this cooperation has assisted the Army in meeting specific situations A case in point exists in the Second Army, which needed physicians badly at the Fort Knox and Camp Campbell station hospitals Through the efforts of Dr I S Ravdin of Philadelphia, a plan was devised whereby residents in training at the various hospitals in the Philadelphia area would contribute two months of their time at each of these hospitals and continue to get credit for their residency training The American Medical Association, the American specialty boards and the three medical schools involved, all were contributing factors in the plan Through this medium qualified professional personnel is guaranteed at these two hospitals for the next year This plan has great stopgap possibilities at this time and is potentially an excellent teaching method I hope that it will be tried in other areas and that its future potential on a permanent basis will be explored Sixth, some of the professional men whom it was anticipated would be leaving the service have extended their tours of duty for varying periods

By way of summation, it is estimated that when all the foregoing "aid factors" are taken into account the Medical Department of the Army is still operating about five hundred physicians short of its full requirements This figure should decrease slightly next summer, when the current group of military residents and interns conclude their periods of training but it may increase again when the men who have extended their tours of duty leave the service Further increases in the gap may be anticipated it procurement efforts do not compensate for otherwise normal attrition

EMERGENCY UTILIZATION OF PERSONNEL

Of interest to all professional men in and out of the service are two studies which stem from the Medical Plans and Operations Division and which concern the more efficient utilization of professional personnel in times of general emergency The first concerns tables of organization, which heretofore rigidly controlled the advancement of so many physicians while in service The table of organization now has been made more flexible so that officers are no longer arbitrarily held to lower grades because of their specialty The new table of organization still provides that there will be certain types of specialists in units, but the exact ranks of these officers will be determined by their age, experience and general qualifications

The second new plan is even more important from a realistic point of view There has been eliminated for the professional man the "hurry up and wait" period which was inexplicable to so many The new structure provides for a "professional complement" within each hospital type medical unit Into this grouping will go all those physicians, dentists, nurses and other persons in scarce categories who are not needed unless the unit is actually carrying out its assigned mission Further, the person in this "professional complement" will not be required to join their unit until it is about to start functioning, conversely, they may be withdrawn from the unit and placed where their services are needed or returned to civilian life when their services are no longer required It can readily be seen that there will not be need for as many of these complements as there was for units, thus not only will there be a deferred need for the professional personnel but the need, once established can be continuing, for a complement could be utilized to staff other units as the patient rates recede in one area and rise in another I believe that this is one of the most intelligent approaches to the proper usage of professional personnel yet produced As a matter of interest along these same lines, it is intended to implement the technic of using scarce personnel still further by creating small teams of consultants who can fly to a particular area assist during a particular time when needed and then fly on to some other "trouble-shooting" assignment

Another measure of interest concerning Army medical organizational structures is the study now being carried out relative to the utilization of female personnel in military hospitals in time of emergency An experiment is being made at this time in one of the general hospitals to see in how many positions men can be replaced with women To date, the study indicates that the percentage is high and I must say that the record of efficiency the women are achieving is excellent

A second feature which I believe is of interest and a source of satisfaction to the physicians in service concerns the officers of the Medical Service Corps Through these officers the physician has been relieved of all his administrative duties, which heretofore were such an irritating burden The Medical Service Corps is now authorized to fill all administrative positions from executive officer of a general hospital on down, and several months ago the inspector general on termination of a worldwide survey reported that physicians were no longer paper workers within the Medical Department

EDUCATIONAL AND TRAINING PROGRAM

Two points of the educational and training program are particularly worthy of mention First, the teaching programs in Army hospitals have been the source of more genuine praise for the Medical Department than anything I have known Almost without exception the consultants sent out to inspect these installations with a view toward finding faults which needed correction have filed reports which compared these teaching programs with the finest found in university hospitals The intern and residency training program remains a vital and vibrant part of military medical life and does much to foster the necessary oneness between the civilian and military members of the medical profession

The second point concerns the medical and dental program of the Reserve Officers' Training Corps During 1947-1948 the Summer Camp schedule for reserve officers' training was wholly inadequate, inasmuch as the vast majority of students were veterans of World War II with long overseas duty It was necessary to revamp the schedule in the midst of the period at that time to substitute medical courses of study for the purely military This year, however, one of the most forward steps in Reserve officers' training of potential professional men came into being when the General Staff approved the plan of taking veteran medical and dental students of the Reserve Officers' Training Corps out of the Summer Camp activity and assigning them to general hospitals for periods of clinical clerkships Much good will and a greater understanding of the workings of a military medical installation were achieved through this act As the plan was envisioned, these clinical clerkships were to be discontinued when the last of the veteran students graduate The success of the present venture will certainly lead toward more realistic scheduling of subject material in the future

The consultant program of the Medical Department of the Army in the Zone of the Interior and overseas has been commendable The outstanding members of the medical profession who have gone out to Army installations and bolstered the teaching staff have been a source of inspiration and aid in the constant striving for a more efficient medical service Much has been learned from them, and they in turn have grown closer to the Army and more aware of its problems All in all, the consultant program has been and will continue to be a good thing for the Army Medical Department

CIVILIAN DEFENSE IN NATIONAL EMERGENCY

Civilian Defense in National Emergency is mentioned not because of any particular military medical significance it may have but principally because of the great influence which each physician has within his own community and especially within his local medical societies No one wants a war—the medical practitioner least of all—but one cannot overlook its possibility or the fact that the nation's most logical potential enemy at this time now possesses the method of exploding the atom This knowledge together with other known military technic means that war, if it should come, will not only be across some expanse of ocean but at America's doorstep

Of all the persons in this country who must be prepared to act quickly, intelligently and thoroughly in such an emergency, the physician ranks first Thus it behooves all physicians to diligently apply themselves to the task of obtaining a clear understanding of preventive and curative measures and of passing such information on to their colleagues The professional man in civilian life must and will bear the burden of civilian medical defense in time of national emergency, thus he must be acquainted with the theories and practices of caring for the civilian population and must impart that knowledge to others

Clinical Notes, Suggestions and New Instruments

AUREOMYCIN AND PENICILLIN THERAPY IN LEPTOSPIROSIS (WEILS DISEASE)

THOMAS M BATCHELOR M D
and
GORDON M TODD M D
Detroit

Although penicillin has been reported to give encouraging results in human leptospirosis (Weil's disease),[1] review of many of the published case reports leaves its specific therapeutic value open to question Aureomycin has been demonstrated[2] to be more than two times as effective as penicillin, weight for weight, in treatment of experimental leptospirosis To the best of our knowledge, no case of spirochetal jaundice treated with aureomycin had been reported at the time our patient was admitted to the hospital In this case aureomycin appears to have been rapidly effective after penicillin had failed to halt progression of the toxic stage of the disease.

REPORT OF CASE

S P, a Negro aged 40, was admitted to the hospital on July 18, 1949, complaining of chills, fever and generalized malaise of eight days' duration Two days prior to admission jaundice had developed, and his urine became dark brown He also complained of pain and tenderness in the calves. There was a history of exposure to rats in the home. Past history was noncontributory

Physical examination revealed an acutely ill man with rectal temperature of 103 8 F., pulse rate 210 and respiratory rate 30 per minute. He was semicomatose and moderately icteric, and he was perspiring profusely Generalized involuntary twitchings of muscle were noted The conjunctivas were decidedly injected, and one area of subconjunctival hemorrhage was seen Hemorrhagic vesicles were present on the lips Moderate nuchal rigidity and a positive Kernig sign were found Coarse rhonchi were heard throughout the pulmonary fields Cardiac abnormalities were not noted, except regular tachycardia The tender liver edge was palpable 8 cm below the right costal margin. Several small ecchymotic areas were seen on the abdomen and extremities

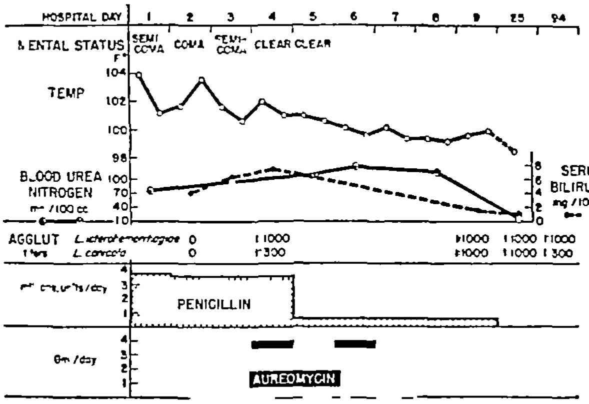
Examination of the blood revealed 11 Gm of hemoglobin and 3,220,000 erythrocytes The leukocyte count was 14,000, of which 80 per cent were polymorphonuclear cells Urinalysis showed a specific gravity of 1 006 and a trace of albumin. The sediment contained occasional leukocytes, erythrocytes and granular casts Bile was present in the urine. The cephalin flocculation test was negative Prothrombin activity was 40 per cent of normal Blood cultures were negative. Dark field examination of the blood was negative for leptospira, and agglutinins for leptospira were not found in the serum on admission

Roentgenograms of the chest showed extensive bronchopneumonia and decided congestive changes, associated with slight left ventricular enlargement. Auricular flutter was revealed by the electrocardiogram

Treatment was started with 600 000 units of crystalline procaine penicillin G in oil four times daily and 200 000 units of crystalline sodium penicillin G every two hours by intramuscular injection General supportive therapv included nasal oxygen, intravenous lanatoside C and parenteral fluids Large doses of vitamin K were given with 10 per cent dextrose solution intravenously Auricular flutter reverted to sinus rhythm within two hours after treatment was begun On the following day he became completely comatose, and decided nuchal rigidity was noted Lumbar puncture yielded yellow spinal fluid with a pressure of 480 mm of water The total cell count was 900 per cubic millimeter, including 500 erythrocytes and 400 leukocytes, of which 90 per cent were polymorphonuclear cells Penicillin concentration in the blood and spinal fluid reached 16 units and 2 units per cubic centimeter, respectively, within thirty-six hours after institution of therapy Despite these high levels, the patient appeared moribund

Aureomycin hydrochloride, in an initial dose of 2 0 Gm, was given to the patient by Levine tube thirty-six hours after admission, followed by doses of 250 mg every three hours He was also given 500 cc. of whole blood On the following morning, about twelve hours after the start of aureomycin therapy, he had improved sufficiently to take sips of water although his condition remained critical The aureomycin dosage was increased to 500 mg every three hours and was continued at this level through the seventh hospital day, when a total of 17.25 Gm had been given

Fluid and electrolyte balance were regulated by frequent serum analyses, and repeated specific renal function studies were performed under the supervision of Dr L T Iseri These studies to be reported in detail,[3] indicated serious reduction of renal function and of the filtration fraction



Clinical course of a patient with severe leptospirosis treated with aureomycin after lack of response to penicillin.

On the fourth hospital day, thirty-six hours after the patient received the first dose of aureomycin, remarkable improvement occurred He became clear mentally, although the blood urea nitrogen level was rising Conjunctival injection and nuchal rigidity subsided He was convalescent on the fifth hospital day At this time, the penicillin blood level was 32 units per cubic centimeter, and the penicillin dosage was reduced to 600,000 units daily Recovery was complicated only by a large sterile abscess of the left buttock at the site of repeated penicillin injections, attributed in part to tissue breakdown resulting from pronounced negative nitrogen balance. Serum bilirubin, blood urea nitrogen and prothrombin activity gradually returned to normal during the third hospital week.

Serum agglutinins for leptospirae were detectable in rising titer on the fourth hospital day and subsequently as indicated in the accompanying chart, which summarizes the clinical course Three months later, on Oct. 20, 1949, the titer of agglutinins for Leptospira canicola had fallen to 1 300 but that for Leptospira icterohaemorrhagiae remained 1 1,000

COMMENT

As high penicillin levels in the blood were maintained for some time after treatment with aureomycin was begun this patient's recovery cannot be ascribed solely to aureomycin. During the first thirty-six hours of treatment with tremendous doses of penicillin alone, however, the patient became progressively worse Improvement occurred within twelve hours

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From the Department of Medicine Wayne University College of Medicine, and City of Detroit Receiving Hospital

[1] Hart V L A Case of Weils Disease Treated with Penicillin Brit. M J **2**:720 (Dec 2) 1944 Carragher A E A Case of Weils Disease Treated with Penicillin ibid **1** 119 (Jan 27) 1945 Cross R M Penicillin in Weils Disease Lancet **1**:211 212 (Feb 17) 1945 Patterson H M Weils Disease Observations in Sixty One Cases with Special Reference to the Use of Penicillin in Six Cases J A M A **134**:1077 1080 (July 26) 1947 Bulmer E Weils Disease in Normandy Its Treatment with Penicillin Brit M J **1** 113 114 (Jan 27) 1945

[2] Heilmann F R Aureomycin in the Treatment of Experimental Relapsing Fever and Leptospirosis Icterohaemorrhagica (Weils Disease) Proc Staff Meet. Mayo Clin **23** 569 573 (Dec 8) 1948

[3] Griffin R J Iseri L T Boyle A J and Myers G B Studies of Renal Function in Weils Disease to be published

after he received the first dose of aureomycin, which appeared to be life saving

Shortly after this experience, a similar case was reported,[4] describing a patient with severe infection due to L icterohaemorrhagiae, aureomycin was given on the sixth day of illness, with prompt amelioration of symptoms The authors stated, "although the rapid improvement could not certainly be attributed to aureomycin, it was felt that specific antispirochaetal effect was most likely "

The apparent success of aureomycin therapy in the case reported here leads us to a similar tentative conclusion Treatment with this agent seems to have been responsible for prompt termination of the toxic stage and transition to the convalescent stage in a patient with severe leptospirosis Controlled clinical studies in larger numbers of patients are essential for evaluation of aureomycin in this disease

SUMMARY

Despite massive doses of penicillin during the first thirty-six hours in the hospital, a patient with severe leptospirosis (Weil's disease) sank into a comatose and apparently moribund state When aureomycin was added to the therapeutic regimen, significant improvement began within twelve hours and the patient recovered

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ABDOMINAL PAIN AND ANEMIA DUE TO MEPHENESIN (TOLSEROL®)

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and
GARFIELD S BARNET, M D
Beverly Hills, Calif

Mephenesin (tolserol®), which is 3-orthotoloxy-1,2-propanediol, has been recommended for the relief of muscle spasm Toxic reactions have not been previously reported following the oral administration of this drug[1] In the following case there developed severe abdominal pain and a decrease of the hemoglobin and red blood cell count after the patient consumed 50 Gm of this drug

REPORT OF CASE

B G, a white married woman aged 34, had been treated for four years with different drugs and physical therapy for cervical dyskinesia This resulted from the fracture of the sixth cervical vertebra following a diving accident in 1945 Roentgenograms of the cervical portion of the spine in 1949 revealed a loss of the cervical curve and residual compression of the sixth cervical vertebra The resulting muscle spasm was intense, with limitation of motion and severe head and neck pain The patient was otherwise in excellent physical condition The past history was noncontributory except for an appendectomy in 1947

All the usual forms of treatment failed to relieve the patient's pain and disability, and she was given mephenesin in 1949 The patient consumed 4 Gm of the drug daily in divided doses for ten days The pain was completely relieved, but the patient became nauseated on the tenth day At this time examination of the patient's blood revealed hemoglobin 94 per cent, 4,900,000 red blood cells per cubic millimeter, and 7,400 white blood cells per cubic millimeter, with a normal differential She was then given 3 teaspoons of the elixir of mephenesin four times daily for two days She again became nauseated on the morning of the third day and stopped taking the drug

At approximately 9 o'clock that evening she suddenly had severe rhythmic, cramplike, pain in the right upper abdominal quadrant occurring at five minute intervals and doubling the patient up with each recurrence This pain did not subside, and one of us (R J K) was called by the husband of the patient at about 10 30 p m At this time the temperature was 98 4 F, the pulse rate was 94 per minute, and the blood pressure 118 systolic and 80 diastolic The respirations varied between 16 per minute when the pain lessened and 24 per minute when the pain became intense The essential physical observations were all confined to the right upper quadrant of the abdomen, where the patient had extreme tenderness to palpation and muscle spasm whenever the pain occurred The liver, kidneys and spleen were not palpable, and abdominal masses were not felt Peristalsis was hyperactive The vaginal and rectal examinations revealed normal conditions The biceps reflexes were absent bilaterally Two hundred milligrams of meperidine hydrochloride (demerol hydrochloride®) and ½ grain (0 03 Gm) of morphine sulfate administered subcutaneously over a period of one and one-half hours did not relieve the pain, and the patient was hospitalized

A blood cell count on arrival revealed a hemoglobin of 65 per cent (10 Gm), 3,530,000 red blood cells per cubic millimeter, color index 0 92, and a white blood cell count of 8,800 per cubic millimeter with 76 per cent neutrophils (13 nonsegmented), 18 per cent lymphocytes, 4 per cent monocytes, 1 per cent basophils and 1 per cent eosinophils The blood smear showed normal platelets and anisocytosis of the red cells The red cell volume was 34 per cent, the sedimentation rate was normal A catheterized urine specimen was essentially normal A noncatheterized urine specimen revealed 30 to 40 red blood cells per high powered field and a trace of albumin, the patient was just completing a normal menstrual period The icterus index was 4 8 The van den Bergh test was negative The total serum proteins were 5 8 Gm per hundred cubic centimeters (albumin 4 5 Gm and globulin 1 3 Gm)

The following morning, the patient still had recurrent pain in the right upper abdominal quadrant Examination of the blood revealed hemoglobin 68 per cent (10 6 Gm), red blood cells 3,500,000 per cubic millimeter, color index 0 98, and white blood cells 9,400 per cubic millimeter, with 51 per cent neutrophils The icterus index was 10 6 The urine urobilinogen test was positive in a dilution of 1 30

Treatment consisted of the administration of large amounts of sedatives to relieve the abdominal pain and intravenous fluids to insure a daily fluid intake of over 3,000 cc The pain subsided in forty-eight hours, at which time examination of the blood revealed hemoglobin 75 per cent (11 5 Gm), red blood cells 3,900,000 per cubic millimeter, and white blood cells 5,800 per cubic millimeter, with a normal differential count The icterus index and urine urobilinogen values returned to normal Results of the cephalin flocculation, thymol turbidity and serum amylase tests were also within normal limits

By the fourth day, the hemoglobin had increased to 79 per cent (12.2 Gm) and the red blood cell count to 4,200,000 per cubic millimeter The nonprotein nitrogen determination was 31 mg per hundred cubic centimeters The phenolsulfonphthalein sodium renal function test showed 44 per cent excretion of the dye at the end of two hours Roentgen examination of the gallbladder and the entire gastrointestinal tract revealed no abnormalities The intravenous pyelogram disclosed essentially normal conditions At the end of the fourth day of treatment, the patient had fully recovered from her attacks of abdominal pain

COMMENT

Mephenesin is a spinal cord and brain stem depressant[2] Its exact metabolism in the body is unknown After administration it is widely distributed in the tissues and body fluids, with the highest concentration in the brain and pancreas[3] The latter localization might have provided the basis for the abdominal pain encountered in this case The blood serum amylase value was normal, however Mephenesin is almost completely metabolized, only a small fraction being excreted in the urine[1]

Intravenous administration of a 2 per cent solution of the drug will cause increased fragility of the erythrocytes Other reactions include horizontal and vertical nystagmus, circumoral numbness, a moderate drop in the blood pressure and dryness of the mouth[1] In high concentrations the drug causes a quinidine-like reaction and prolongs the refractory period of the cardiac cycle.

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[4] Brainerd, H, Lennette L H Meiklejohn, G, Bruyn, H B, Jr, and Clark W H The Clinical Evaluation of Aureomycin, J Clin Investigation **28** 992 1005 (Sept) 1949

[1] Schlesinger, F B, Drew, A L, and Wood, B Clinical Studies on the Use of Myanesin Am J Med **4** 365 1948

[2] (*a*) Gammon G D, and Churchill, J A Effects of Myanesin upon the Central Nervous System Am J Med Sc **217** 143, 1949 (*b*) Schlesinger, Drew and Wood[1]

[3] Richardson A P Morrison J S and Walker H A Pharmacologic Studies on Myanesin Am J Med **4** 464 1948

Examination of various organs of animals treated with mephenesin fails to reveal any toxic effect Nausea has been reported after oral administration of the drug[1] Gammon and Churchill[2a] reported a drop in the leukocyte count in 2 patients taking large doses of mephenesin by mouth

This drug is having wide use and distribution at the present time It is considered that the acute abdominal pain and the decreased blood cell count represented a toxic reaction to mephenesin The mechanism of this untoward effect is not apparent There is need for careful supervision during the administration of this drug despite reports of data indicating the absence of undesirable side effects

SUMMARY

1 A case is reported in which the patient exhibited a toxic reaction to mephenesin (tolserol®) characterized by severe abdominal pain and anemia

2 Future reports of toxic effects of this drug may be anticipated and due precautions should be exercised during its administration

416 North Bedford Drive

RECURRENT ANENCEPHALY

NATALIE FEUERLICHT M D
Huguenot S I N Y

In spite of statistical evidence to the contrary, there persists general acceptance of the belief that congenital abnormalities are unlikely to recur In a recent inquiry to The Journal[1] regarding recurrence of hydrocephalus an opinion was given that the parents of a monstrosity run no greater risk of having another one than any other parents This was challenged by Murphy,[2] who studied the outcome of all conceptions in a series of 890 women, each of whom had given birth to a congenitally malformed child A case of recurrent anencephaly, the report of which follows, emphasizes some of the inherent problems

REPORT OF CASE

I R., primigravida aged 21, was seen July 14, 1947, with a history of last menstruation on April 8 1947 Her past history revealed no illnesses, surgical operations or accidents Family history of both the patient and her husband and of all siblings revealed no abnormal pregnancies or abnormal offspring Laboratory data were within normal limits, and menstrual history was normal The patient was Rh positive, the husband Rh negative The course of pregnancy was normal Two weeks past the expected date of confinement (Jan 15, 1948) the patient was examined Fetal heart sounds were heard in the lower abdominal quadrant. On rectal examination, however, the presenting part could not be defined Roentgen examination revealed an anencephalic fetus Medical induction of labor was unsuccessful but was reattempted successfully one week later, Feb 7, 1948 After ten hours of labor a female anencephalus was delivered in face presentation Weight of the fetus was 7½ pounds (3 902 Gm) Death occurred after twelve hours Grossly, the body was strikingly well formed Permission for autopsy could not be obtained

Obstetric opinion was sought with regard to recurrence of congenital anomalies The consensus obtained at that time was that the likelihood that this woman would have a subsequent monstrosity was no greater than that for any other parent Therefore, and because of the desire for children, the parents were not discouraged *from attempting subsequent pregnancies*

The patient was seen again Feb 6, 1949 her last menstruation having occurred on Dec. 6, 1948 During the third month of this second pregnancy a mild cystitis developed, which subsided uneventfully with penicillin treatment Examination on Aug 20, 1949 (about six weeks before the expected date of confinement) revealed an excessive increase in the size of the abdomen, extreme discomfort and respiratory embarrassment Fetal heart sounds were not audible, but placental souffle was present. On rectal examination only bulging membranes were felt Roentgen examination confirmed the diagnosis of hydramnion and in addition showed an anencephalic fetus in transverse position. Artificial rupture of membranes yielded 10 liters of liquor External version of the fetus into cervical presentation was done. Seven hours later a premature female anencephalus was delivered, which expired one minute post partum Permission for autopsy could not be obtained The infant's body was grossly well formed Examination of the placenta revealed nothing unusual

COMMENT

The incidence of congenital anomalies, when calculated for the general population is diluted to relatively insignificant figures there is one malformed child for every 200 infants born alive[2b] A different problem, however, arises in prognostication of recurrence of anomalies following the birth of defective offspring In fact, according to Murphy,[2] a mother of a defective child is twenty-five times more likely to have another defective offspring than is a mother in the general population Further, Murphy showed that there is nearly one chance in two that a subsequent malformed child will exhibit the same defect as that shown by its earlier born sibling These data are in line with the opinion expressed by Ballantyne[3] in 1905, that once a woman has given birth to an anencephalic offspring it can almost be presumed that the subsequent pregnancies will show an anencephalus or at any rate some form of monstrosity

There is considerable disagreement as to the sex incidence in anencephalus The difference of opinion ranges from a ratio of 10 males to 30 females given by Ballantyne[3] to a statement by Rees[4] that there was no reference made in all the literature to a male anencephalus Actually three records of male anencephalus have been found.[5] A review of the literature indicates that the length of gestation is abnormal If the pregnancy is not complicated by hydramnion the anencephalic fetus is delivered postmaturely If hydramnion is present, premature delivery takes place.[6] In general the fetuses are born viable but expire shortly after birth. Thoms reports that 3 successive anencephalic fetuses were delivered macerated[6b]

This case report contributes nothing toward an elucidation of the etiologic basis of congenital malformation Unfortunately, in this case autopsy could not be performed. In those cases of anencephaly which have come to autopsy absence of pituitary gland and aplasia or hypoplasia of the adrenal glands have been noted[6a] In this connection it seems worth mentioning that generally the bodies of anencephali are well formed

SUMMARY

1 A case of recurrent anencephaly has been reported

2 The incidence of recurring anencephaly is high.

3 Female anencephali predominate, but male anencephali have been reported

4 In this condition the length of gestation is abnormal, hydramnion is a common complication

882 Huguenot Avenue (12)

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[1] Queries and Minor Notes J A M A **139** 194 (Jan 15) 1949

[2] (*a*) Murphy D P Queries and Minor Notes J A M A **140** 260 (May 14) 1949 (*b*) Congenital Malformation A Study of Parental Characteristics with Special Reference to the Reproductive Process ed 2 Philadelphia J B Lippincott Company 1947

[3] Ballantyne J W Manual of Antenatal Pathology and Hygiene Baltimore William Wood & Company 1905 vol 2

[4] Rees E G A Case of Anencephalus St. Barth Hosp J **51** 110 1947

[5] Ballantyne J W Tr Case Presentation Edinburgh Obst Soc **24** 17 1899 Dunn H G and Salter J G Recurrent Anencephaly J Obst & Gynaec Brit. Emp **51** 529 1944 Malpas, P Postmaturity and Malformation of the Foetus ibid **40** 1946 1933

[6] (*a*) Quigley J K. The Occurrence of Anencephalic Monsters in Successive Pregnancies Am J Obst. & Gynec. **46** 879 1943 Footnote 5 (*b*) Thoms H Family Prevalence in Anencephaly J A M A. **70** 10 (Jan 5) 1918

Council on Foods and Nutrition

REPORT OF THE COUNCIL

The following statement has been authorized for publication by the Council on Foods and Nutrition

JAMES R WILSON, M D, *Secretary*

CARBONATED BEVERAGE DISPENSING MACHINES IN SCHOOL BUILDINGS

The Council believes that one of the valuable functions of a school lunch program is to provide training in sound food habits Of considerable significance in the adoption of such a program is the sale of food, confections or drinks on the school premises, opportunities to purchase food and drink at nonlunchroom concessions bear directly on the food habits established in the child School children generally have a limited sum of money for the purchase of their daily lunch If a portion of this money is spent on substances of limited nutritional value, the value of the lunch which a child may obtain with the remaining money obviously is reduced The availability of carbonated beverages on school premises may induce a child to spend lunch money for these and allow him to develop poor dietary habits This is especially true for the younger children Expenditure for carbonated beverages yields a nutritional return much inferior to that from a similar sum spent for milk or other staple foodstuff Furthermore, when given a choice between carbonated beverages and milk to accompany a meal, a child may frequently choose the less nutritious beverage In view of these facts, the Council believes that carbonated beverages should not be sold on school premises

ACCEPTED FOODS

The following products have been accepted as conforming to the rules of the Council JAMES R WILSON, M D, *Secretary*

Beech-Nut Packing Company Canajoharie, N Y

BEECH NUT CEREAL FOR BABIES Ingredients Enriched farina, oat meal, defatted wheat germ, cornmeal powdered beef bone, dried brewer's yeast, salt sodium iron pyrophosphate and thiamine hydrochloride (B_1)

Analysis (submitted by manufacturer) —Protein (N × 6 25) 17 25%, carbohydrates 67 55% fat (acid hydrolysis) 3 00%, ash (total minerals) 4 90%, crude fiber 1 20%, moisture 6 10% calcium 0 79%, phosphorus 0 78% iron 0 03%, copper 0 0004%

Vitamins	*Per Hundred Grams*
Thiamine	1 52 mg
Riboflavin	1 34 mg
Nicotinic acid	5 92 mg

Calories —3 7 per gram, 105 per ounce

Use —For use in infant feeding

Clapp's Baby Food Division, American Home Foods, Inc, Rochester, N Y

CLAPP'S JUNIOR FOODS—PEACHES Ingredients Peaches and sugar

Analysis (submitted by manufacturer) —Total solids 13 82%, ash 0 29%, fat (ether extract) 0 27%, protein (N × 6 25) 2 03%, crude fiber 0 42%, carbohydrates other than crude fiber (by difference) 10 71%

Vitamins and Minerals	Mg per Hundred Grams
Vitamin A	0 22
Thiamine	0 016
Riboflavin	0 014
Ascorbic acid	1 01
Niacin	1 04
Calcium	17 00
Phosphorus	13 00
Iron	0 52
Copper	0 17

Calories —0 53 per gram, 15 17 per ounce

Use —For use in the feeding of older infants and young children

CLAPP'S JUNIOR FOODS—VEGETABLES WITH LAMB, RICE AND BARLEY Ingredients Carrots, lamb, peas, green celery, rice, barley, dehydrated potatoes, salt and dehydrated onions

Analysis (submitted by manufacturer) —Total solids 12 61%, ash 1 11% fat (ether extract) 0 42%, protein (N × 6 25) 2 22%, crude fiber 0 48%, carbohydrates other than crude fiber (by difference) 8 38%

Vitamins and Minerals	Mg per Hundred Grams
Vitamin A	2 05
Thiamine	0 039
Riboflavin	0 034
Ascorbic acid	2 02
Niacin	0 68
Calcium	22 50
Phosphorus	46 00
Iron	0 25
Copper	0 13

Use —For use in the feeding of older infants and young children

Calories —0 46 per gram, 13 12 per ounce

CLAPP'S STRAINED FOODS—PINEAPPLE PUDDING Ingredients Unsweetened pineapple juice, sugar, cake flour, powdered whole milk frozen whole eggs, salt and vanilla

Analysis (submitted by manufacturer) —Total solids 20 04%, ash 0 64%, fat (ether extract) 1 52%, protein (N × 6 25) 2 24% crude fiber 2 18%, carbohydrates other than crude fiber (by difference) 13 46%

Vitamins and Minerals	Mg per Hundred Grams
Vitamin A	0 08
Thiamine	0 024
Riboflavin	0 130
Ascorbic acid	2 08
Niacin	0 13
Calcium	52 8
Phosphorus	49 7
Iron	0 12
Copper	0 08

Calories —0 73 per gram, 21 58 per ounce

Use —For use in the feeding of infants, convalescents and others requiring a soft diet

The Gerber Products Company, Fremont, Mich

GERBER'S JUNIOR SOUP—MIXED VEGETABLES consist of chopped carrots chopped potatoes, peas, celery powder, pearl barley, salt, dried yeast and onion powder

Analysis (submitted by manufacturer) —Total solids 10 68%, moisture 89 32%, ash 1 40%, fat (ether extract) 0 34%, protein (N × 6 25) 1 41%, crude fiber 0 58%, carbohydrates other than crude fiber (by difference) 6 95%

Calories —0 36 per gram, 10 29 per ounce.

Vitamins and Minerals	*Per Hundred Grams*
Vitamin A	5933 U S P Units
Thiamine	0 104 mg
Riboflavin	0 142 mg
Ascorbic acid	3 77 mg
Niacin	1 30 mg
Calcium	17 3 mg
Phosphorus	46 9 mg
Iron	0 83 mg

Use —For use in the feeding of older infants and young children

GERBER'S JUNIOR FOODS—PLUMS WITH TAPIOCA consists of plums with approximately 12% sugar, a pearl tapioca not in excess of 5% and sufficient water for preparation

Analysis (submitted by manufacturer) —Total solids 25 53% moisture 74 47%, ash 0 24%, fat (ether extract) 0 11%, protein (N × 6 25) 0 41%, crude fiber 0 17% and carbohydrates other than crude fiber (by difference) 24 60%

Vitamins and Minerals	Per Hundred Grams
Vitamin A	755 U S P units
Thiamine	0 0353 mg
Riboflavin	0 0205 mg
Ascorbic acid	0 782 mg
Calcium	6 5 mg
Phosphorus	7 1 mg
Iron	1 19 mg

Calories —1 01 per gram 28 63 per ounce

Use —For use in the feeding of older infants and young children

Van Camp Sea Food Company, Inc, Terminal Island, Calif

BABY FOOD, CHICKEN OF THE SEA BRAND STRAINED TUNA *consists* of light meat tuna, distilled water and table salt (NaCl)

Analysis (submitted by *manufacturer)* —Total solids 21 8%, moisture 78 2%, protein *20 8%*, fat *0 6%*, *carbohydrates* 0 1%

Calories —0 94 per gram, 26 6 per ounce

Vitamins and Minerals	Per Hundred Grams
Calcium	15 mg
Iron	2 mg
Copper	0 05 mg
Phosphorus	180 mg
Iodine	10 mcg
Fluorine	1 5 mg
Choline	40 mg
Riboflavin	80 mcg
Nicotinic acid	12 mg
Animal protein Factor B_1	8 mcg
Cholesterol	50 mg

Use —For use in the feeding of infants and young children

HOSPITAL SERVICE IN THE UNITED STATES

TWENTY-NINTH ANNUAL PRESENTATION OF HOSPITAL DATA BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN MEDICAL ASSOCIATION

By F H Arestad, M D , and Mary A. McGovern

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The present annual report on hospitals registered by the American Medical Association shows a new high in the utilization of hospital service in the United States A total of 16,659,973 patients were admitted in 1949, which represents 1 admission every 1 9 seconds and an increase of 237,199 in comparison with the previous year The number of hospital births increased by 26,510 and reached a total of 2,820,791, or 1 live baby every 11 2 seconds The present bed capacity of 1,439,030 shows an increase of 15,510, while the average daily census of 1,224,951 is 6,797 more than were recorded in 1948 There was likewise an increase in the number of registered hospitals from 6,335 to 6,572, with a total of 447,107,115 patient days reported in 1949

SUMMARY OF HOSPITAL DATA—1949

All Registered Hospitals		General Hospitals	
Number	6,572	Number	4,761
Bed capacity	1,439,030	Bed capacity	574,683
Bassinets	89,386	Bassinets	85,502
Patients admitted	16,659,973	Patients admitted	15,450,311
Births	2,820,791	Births	2,744,268
Average daily census	1,224,951	Average daily census	429,443
Patient days	447,107,115	Patient days	156,746,695

The hospital census of 1949 is based on information submitted by individual hospitals on special forms prepared by the Council on Medical Education and Hospitals in collaboration with the American College of Surgeons Included in the current report are (1) a complete list of all registered hospitals in the United States, its territories and possessions, (2) special symbols designating the hospitals approved by the American Medical Association for the training of interns and resident physicians, the hospitals accredited by the American College of Surgeons as meeting unconditionally the requirements for general standardization, and hospitals conducting schools of nursing education or affiliated training programs accredited by the respective State Boards of Nurse Examiners, (3) statistical information on the number, size and classification of hospitals, bed capacity, percentage occupancy, number of births, patients admitted, average daily census and total patient days, (4) a report on professional and auxiliary nursing personnel, schools of nursing education and student enrolment, and (5) lists and other information on schools approved by the Council on Medical Education and Hospitals for the training of medical technologists, x-ray technicians, physical therapists, occupational therapists and medical record librarians

Over 98 per cent of the registered hospitals participated actively in the present survey and furnished information either for the calendar year or for the latest twelve month period for which statistics were available For this generous cooperation, the Council on Medical Education and Hospitals extends its sincere appreciation to all hospitals, the medical departments of the Army, Air Force, Navy, U S Public Health Service, Veterans Administration, the Federal Security Agency and all other organizations and individuals who have contributed to the preparation of this report

Scope of Survey

All hospitals registered by the American Medical Association are represented in the 1949 survey These include 6,572 hospitals in the United States, 26 in Alaska, 6 in the Canal Zone, 1 in Guam, 44 in Hawaii, 48 in Puerto Rico, 4 in the Virgin Islands and 28 in the European and Far East commands of the United States Army While all of these appear in the registered list, the hospitals in the territories, possessions and European and Far East Army commands are not included in the statistical report The latter therefore, is limited solely to hospital services located within the Continental United States. Included in the registered list are 1,281 hospitals approved by the American Medical Association for internships and/or residencies in specialties. Full information on these services has been published in the Internship and Residency Number of The Journal, April 15, 1950, which lists 799 hospitals approved for internships and 1,079 for the training of resident physicians. Included in the intern and residency lists are 596 hospitals which hold approval in both classifications. There appears also in the registered list a total of 2,469 hospitals fully accredited by the American College of Surgeons under its program of general standardization.

Table A.—*Summary of Growth of Hospitals, 1909 to 1949*

Year	Federal Hospitals Number	Federal Hospitals Capacity	State Hospitals Number	State Hospitals Capacity	All Other Hospitals Number	All Other Hospitals Capacity	Total Number	Total Capacity
1909	71	8,827	232	189,049	4,056	223,189	4,359	421,065
1914	93	12,602	294	232,834	4,660	287,045	5,047	532,481
1918	110	18,815	303	262,254	4,910	331,182	5,323	612,251
1923	220	53,869	601	302,208	6,009	399,645	6,830	755,722
1928	294	61,705	595	369,759	5,963	461,470	6,852	892,934
1931	291	69,170	576	419,292	5,746	485,653	6,613	974,115
1932	301	74,151	563	442,001	5,698	498,202	6,562	1,014,354
1933	295	76,035	557	459,046	5,585	491,965	6,437	1,027,046
1934	313	77,865	544	473,035	5,477	497,201	6,334	1,048,101
1935	316	83,353	529	483,994	5,401	507,792	6,246	1,075,139
1936	323	84,234	524	503,306	5,342	509,181	6,189	1,096,721
1937	329	97,951	522	508,013	5,277	517,084	6,128	1,124,548
1938	330	92,248	523	541,279	5,313	527,853	6,166	1,161,380
1939	329	96,338	523	560,575	5,374	538,113	6,226	1,195,026
1940	346	108,929	521	572,078	5,424	545,238	6,291	1,226,245
1941	428	170,202	530	610,320	5,400	544,859	6,358	1,324,381
1942	474	220,948	530	606,477	5,341	556,402	6,345	1,383,827
1943	827	476,648	531	610,115	5,297	562,491	6,655	1,649,254
1944	795	551,135	539	609,025	5,277	569,785	6,611	1,729,945
1945	705	546,384	549	619,612	5,257	572,948	6,511	1,738,944
1946	461	261,486	537	628,363	5,282	578,865	6,280	1,468,714
1947	401	213,201	563	626,619	5,312	585,470	6,276	1,425,222
1948	372	185,098	567	648,346	5,396	590,076	6,335	1,423,520
1949	381	182,254	573	656,611	5,618	600,165	6,572	1,439,030

Changes, corrections and additions have been made in the registered list up to the date of publication and, therefore, totals derived from the list, itself, may show slight variations from those presented in the tables of the statistical report.

Number, Size and Classification of Hospitals

The number of hospitals in the United States currently registered by the American Medical Association is 6,572, as compared with 6,335 in 1948. This represents a net increase of 237, although 345 new registrations were recorded during the year. The listing of 108 hospitals was discontinued, however, chiefly through the closing of individual institutions. It should be noted that the registration of hospitals is carried out in accordance with standards officially adopted by the House of Delegates of the American Medical Association. These requirements, which appear under the title, Essentials of a Registered Hospital, were published in The Journal, May 7, 1949, pages 35-36.

Table B.—*Number of Hospitals According to Size*

Bed Capacity	General Hospitals	Nervous and Mental	Tuberculosis	Other Hospitals	Total Number
25 and under	1,112	34	27	105	1,338
26-50	1,145	79	68	210	1,511
51 100	991	83	121	199	1,385
101 200	786	48	100	112	1,046
201 300	357	20	61	39	476
301 and over	370	343	77	36	816
Totals	4,761	606	444	701	6,572

By reference to table C, it will be found that 1,937, or 29.5 per cent, of the present hospitals, operate under governmental control whereas 4,635, or 70.5 per cent, are in the nongovernmental classification. Increases occurred in both divisions but were more pronounced in the nongovernmental group, where gains were recorded in all categories, the church-related hospitals gained 22, the other nonprofit associations 51, the individual and partnership hospitals 104 and the corporations unrestricted as to profit 23. The federal classification, which had a net loss of 11, has shown a continuous decrease in the number of hospitals since the war time period of 1943. There were numerical gains, however, of 6, 31, 5 and 6, respectively, in the state, county, municipal and city-county groups.

Table C.—*Summary of Hospital Service Classified by Control*

	Hospitals	Beds	Bassinets	Admissions	Average Census	Births
Governmental						
Federal	381	182,254	2,432	1,164,076	144,950	60,026
State	573	656,611	2,105	791,671	618,014	59,790
County	561	103,209	4,801	898,955	85,650	141,540
City	373	71,779	5,877	1,190,265	58,160	186,315
City county	69	11,302	1,170	213,778	8,469	38,714
Total governmental	1,937	1,025,155	16,385	4,258,785	915,843	486,385
Nongovernmental						
Church	1,090	146,315	27,664	4,758,992	114,408	944,610
Nonprofit associations	2,067	213,576	35,565	6,089,085	159,560	1,121,744
Total nonprofit	3,157	359,891	63,229	10,848,077	273,968	2,066,354
Individual and partnership	1,077	29,669	6,099	870,668	17,947	153,947
Corporations (profit unrestricted)	401	24,315	3,673	682,443	17,193	114,105
Total proprietary	1,478	53,984	9,772	1,553,111	35,140	268,052
Total nongovernmental	4,635	413,875	73,001	12,401,188	309,108	2,334,406
Total all hospitals	6,572	1,439,030	89,386	16,659,973	1,224,951	2,820,791

Table D.—*Summary of Hospital Data According to Type of Service*

	Hospitals	Beds	Bassinets	Admissions	Average Census	Births
General	4,761	674,683	85,502	15,450,311	429,443	2,744,208
N & M	606	705,423	226	303,055	675,096	423
Tuberculosis	444	83,470	110	113,078	69,476	3,536
Maternity	102	5,087	3,153	98,543	3,359	72,274
Industrial	33	2,945	1	60,159	1,925	4
E E N T	52	2,542	14	118,065	1,538	
Children's	42	4,656	118	116,821	3,220	
Orthopedic	87	6,954	24	36,368	5,327	
Isolation	56	10,364	118	148,354	4,535	79
Conv and rest	109	6,034	3	36,396	4,430	27
Institutions	202	20,920	111	132,831	12,917	175
All other hospitals	78	15,952	6	40,392	13,685	5
Total all hospitals	6,572	1,439,030	89,386	16,659,973	1,224,951	2,820,791

In the classification of hospitals by type of service, the general hospitals constitute the largest group, now totaling 4,761, or 72.4 per cent of all institutions included in the present report. This is an increase of 172 hospitals in the last year with gains reported in all governmental and nongovernmental divisions except the state and federal groups. The latter showed a loss of 18, while the number of general hospitals in the state classification remained unchanged. The largest gain of 79 was reported in the individual and partnership group, while the church-related hospitals and other nonprofit associations increased by 56, the county, municipal and city-county hospitals by 37 and the corporations unrestricted as to profit by 18. The psychiatric hospitals have increased in the last year from 586 to 606, the tuberculosis sanatoriums from 438 to 444 and the maternity hospitals from 100 to 102. Relatively few changes occurred in the other categories shown in table D, although it should be noted that the number of isolation hospitals was reduced from 61 to 56 Table A shows the changes that have occurred in the number of hospitals since 1909, while E and G give further data in accordance with type of service and control Table F should likewise be consulted with reference to the classification of federal hospital services

In table B, which shows the general, psychiatric, tuberculosis and other hospitals arranged by size, it will be found that 4,234, or 64 per cent, of the registered hospitals have 100 beds or less Hospitals with 101 to 300 beds number 1,522, or 23 per cent, while those with more than 300 beds total 816, or 13 per cent The general hospitals follow the same pattern, but in the psychiatric group the larger institutions predominate, inasmuch as 55 per cent have over 300 beds

Bed Capacity

Comparative Totals	
1948	1 423 520
1949	1 439 030

The bed capacity of the registered hospitals reached its highest level in 1945, when a total of 1,738,944 beds were reported Thereafter there was a continuous decrease each year to 1,423,520 in 1948 This period, however, recorded an actual increase in the number of nongovernmental hospital beds, whereas the governmental classification showed losses that were related mainly to the federal group With the increased number of hospitals in the last year there was a corresponding advance in bed capacity to the present total of 1,439,030 Gains occurred in both the governmental and nongovernmental groups, although individual losses appeared in the federal and municipal classifications as shown in table C

Table E.—*Governmental and Nongovernmental Hospital Service*

	Hospitals	Beds	Bassinets	Admissions	Average Census	Births
Governmental						
General	949	225 644	15 406	3 622,501	170 351	472,363
N & M	373	685 413	222	234 715	659 045	423
Tuberculosis	325	73,032	100	97,903	61 009	8,532
Other special	101	23 045	561	188 493	14 438	9 959
Institutions	159	18 021	87	115 113	11 400	108
Total governmental	1 937	1 025 155	16,385	4,258 785	915 843	4[illegible]6 885
Nongovernmental						
General	3 782	349 039	70 096	11 827 750	259 092	2,271 905
N & M	233	20 010	4	73 340	16 451	
Tuberculosis	119	10 438	1	15 175	8 467	4
Other special	458	81 489	2 876	407 205	23,581	62 480
Institutions	43	2 899	24	17 718	1,517	67
Total nongovernmental	4 635	413 875	73 001	12,401 188	309 108	2 334 406
Total all hospitals	6,572	1 439 030	89 386	16 659,973	1,224 951	2,820 791

The hospitals operating under governmental control report 1,025,155 beds, or 71.2 per cent of the total capacity of all registered hospitals, while the nongovernmental group with 413,875 have 28 8 per cent This latter ratio may be compared with 26 3 per cent in 1946, 27 7 in 1947 and 28 4 in 1948 The federal hospitals which now have 182,254 beds, including 110,543 in the Veterans group, are classified further in tables F and G which describe the individual agencies and the type of hospital service

Table F—*Federal Hospital Service*

	Hospitals	Beds	Bassinets	Admissions	Average Census	Births
U S Army	48	24 960	784	255 512	16 503	22 195
U S Air Force	36	4 784	333	81 070	2,048	6 662
U S Navy	35	18 898	782	199 [illegible]4	12,675	22 062
U S Public Health Service	46	10 837	79	105 316	7,404	1 129
Veterans Administration	129	110 543		469 755	95 960	2
Indian Affairs	61	8,343	399	49 003	2 099	5 774
Other Federal	6	8,589	55	12,536	7 760	2,202
Total Federal	361	182,254	2,432	1 164 096	144 950	60 026

Table G—*Summary of Hospital Service in the United States According to Type of Service and Agencies Concerned from the 1949 Census of Hospitals Registered by the American Medical Association*

U S Totals	6 572	1 439 030	89 386	16 659 973	1 224,951	2,820 791
Type	Hospitals	Beds	Bassinets	Admissions	Average Census	Births
Federal						
Totals	361	182,254	2 432	1 164 096	144,950	60 026
General	272	103 692	2,402	1 060 [illegible]68	74 905	60 001
N & M	37	64,172	11	51,399	59 743	8
TB	25	10,213		20 792	8,207	
Other Special	3	1,518	13	16 938	760	5
Institutions	24	2,659	6	14 199	1,335	12
State						
Totals	573	656,611	2,105	791 671	618 614	69 790
General	58	21,072	1 758	338,337	16,333	68 507
N & M	257	593 581	195	172 [illegible]65	572,280	414
TB	84	26 028	3	25 675	21 555	54
Other Special	35	7,579	69	120 073	4 343	719
Institutions	100	8 351	80	84 721	4 103	96
County						
Totals	561	103 909	4 801	898,955	85 650	141 540
General	299	43 8[illegible]6	4,568	831 080	33 053	131,969
N & M	47	20 798	10	10 081	25 943	1
TB	178	24,241	21	80 468	20,335	848
Other Special	20	5 462	401	18 [illegible]15	3 230	9,222
Institutions	17	2,892	1	9 020	2 489	
City						
Totals	378	71 779	5,877	1 190 255	58 160	180 816
General	297	47,868	5 733	1 133,201	3[illegible] 725	183 172
N & M	2	862	6	370	6[illegible]9	
TB	25	10 609	85	18,978	9 358	8 130
Other Special	40	8,261	53	80 [illegible]63	5 9[illegible]5	13
Institutions	9	4 119		7,173	3 473	
City-County						
Totals	69	11,302	1,170	213 778	8 469	38 714
General	53	9 196	1 145	209 175	6 735	38 714
N & M						
TB	18	1,881		2,002	1,534	
Other Special Institutions	8	225	25	2,601	180	
Church						
Totals	1 000	146,815	27 064	4 758 992	114 408	944 [illegible]0
General	865	135 715	26 523	4 678 472	100,2[illegible]9	921 978
N & M	19	3 141		7 015	2 401	
TB	18	1,913		2,580	1 036	
Other Special	85	5 328	1 132	59 876	3 750	22 570
Institutions	8	188	9	1 019	22	67
Nonprofit						
Totals	2 067	213 576	35,565	6 079 085	159,500	1 121 744
General	1 655	175 119	34 115	5 709,037	129 844	1 088 503
N & M	44	6 538		16 093	5 652	
TB	74	7 125	1	10 438	5 715	4
Other Special	254	22,080	1,434	335,945	16 854	33 237
Institutions	40	2,711	15	16 699	1 495	
Individual and Partnership						
Totals	1 077	29 669	6 039	870 678	17 947	153 947
General	871	21 913	5,912	804,217	11 990	148 644
N & M	91	4 409	4	22,[illegible]65	3 415	
TB	20	842		1,251	654	
Other Special Institutions	95	2,505	183	42 832	1 888	5,303
Corporations						
Totals	401	24 315	3 673	6[illegible]2,443	17 193	114 105
General	291	16,262	3 546	[illegible]25 124	10 959	112,785
N & M	79	5 922		27 864	4 673	
TB	7	525		9[illegible]	462	
Other Special Institutions	24	1 576	127	2[illegible],549	1 059	1,[illegible]0

When the hospitals are classified in accordance with the type of service offered, it is found that the general hospitals have 574,683, or 39 9 per cent of the total hospital beds While this represents a loss of 1,776 compared with last year, there were gains reported in all governmental and nongovernmental classifications except in the federal and municipal groups The net loss in the governmental group was 10,022, whereas the nongovernmental general hospitals showed an increase of 8,246 beds It may be noted further in tables E and G that the governmental general hospitals have 225,644 beds, the nongovernmental 349,039 As a group the psychiatric hospitals have the largest number

TABLE 1—HOSPITAL FACILITIES BY STATES AND BY CONTROL A. GOVERNMENT HOSPITALS

Marginal No		Federal					State					County					City					City County					Total Governmental					Marginal No
		Hospitals	Beds	Bassinets	Patients Admitted	Average Census	Hospitals	Beds	Bassinets	Patients Admitted	Average Census	Hospitals	Beds	Bassinets	Patients Admitted	Average Census	Hospitals	Beds	Bassinets	Patients Admitted	Average Census	Hospitals	Beds	Bassinets	Patients Admitted	Average Census	Hospitals	Beds	Bassinets	Patients Admitted	Average Census	
1	Alabama	7	3,870	27	14,870	3,376	9	9,129	101	44 122	8,121	6	379	13	5,355	300	4	520	67	13,896	175	8	828	167	31,609	514	33	14,526	375	109 852	12,489	1
2	Arizona	18	1 847	92	19,994	1,397	3	1,040		1,064	1,574	8	750	71	13,093	667	2	38	8	418	8						31	4,275	171	34,604	3,036	2
3	Arkansas	4	3,706	10	25,495	2,861	4	6 378	31	8 840	6 321	2	214	6	261	190	5	291	80	13 012	101						15	10 019	127	47 611	9 533	3
4	California	27	18 839	337	144 519	14 063	18	35,135	41	37,171	35,979	67	19,957	801	215 033	16,551	4	144	42	6,824	87	3	2,538	53	22,318	2 230	109	76 613	1 277	420 575	65 915	4
5	Colorado	8	4,262	41	23,834	3,248	7	6,540	22	7,455	6 094	8	529	77	11,720	222	1	59	21	3,401	74	1	495	20	9 035	320	25	11,715	191	55 445	10 018	5
6	Connecticut	3	420		5,073	314	14	12,973	5	7,020	12,513	.					4	734	14	5,392	535						21	14,177	19	18,085	13 362	6
7	Delaware	1	150		1,867	146	6	2,903	7	1,540	2,459	.															7	3,053	7	3,413	2 605	7
8	District of Columbia	7	9,771	97	30,161	8,555						.					4	3 395	135	21,605	2,423						11	13,166	232	51,856	11,381	8
9	Florida	12	2,849	161	34,265	2,135	9	9,039	14	12 695	8 000	15	1,654	222	29 375	1 079	11	1 095	230	36,132	745	3	182	31	3,900	97	50	14 819	688	126 447	12 036	9
10	Georgia	10	5,118	66	40,331	3,748	6	12 509	11	19,119	11 8 6	14	1,254	215	39 938	858	6	853	121	31,893	602	8	738	138	25,282	439	42	20 472	581	156 617	17 533	10
11	Idaho	1	263		2,130	200	5	2 040		1 256	1,537	6	567	86	8,980	168	1	25	6	559	14						13	2,595	92	12 961	2,228	11
12	Illinois	9	10 299	60	56 751	8 293	22	47,384	50	38,092	45,128	28	7 653	279	80,233	5 690	23	3,146	215	45 295	2,452						82	68 452	610	220 391	61 608	12
13	Indiana	4	2 637		8 547	2 546	17	15 094	104	17,568	11 581	39	2 005	471	71,160	2,251	5	889	94	15 860	643						65	22,184	669	112 835	20 124	13
14	Iowa	2	2,209		6 802	2,113	12	11,454	55	24 726	11,191	8	569	45	8 054	380	9	350	101	13,332	253						31	14,612	201	52 914	13 937	14
15	Kansas	10	3,564	49	28,756	2 774	12	8,003	46	12,591	8 020	10	372	100	11 893	275	12	451	147	15,278	324	1	19	6	233	10	45	13,014	348	68 657	11 413	15
16	Kentucky	8	4,871	38	26,169	4 005	10	8,874	23	7,559	7,148	5	287	25	4,109	252	5	319	80	12,782	207	3	931	57	15 285	724	31	15 252	223	65 894	12 936	16
17	Louisiana	6	2,411	28	18,142	1,857	12	13,132	124	100 705	11,168	.					1	100		312	23						19	15,643	452	119 162	13,053	17
18	Maine	2	959		4,393	824	6	4,741	2	1 108	4,183	.					3	192	38	3,294	146						11	5 892	40	9 095	5,158	18
19	Maryland	9	4,943	107	41 523	3,994	14	10,421	84	16 521	10,137	2	152	38	5,171	111	2	1,963	80	7,222	1 409	1	218	50	5 269	187	28	18,005	359	76 009	16,138	19
20	Massachusetts	10	7,275	59	53,095	6,034	27	33,317	54	16 453	32 618	8	1,359		1,195	996	25	6,259	545	91,354	4,082						70	48 270	658	142 117	44 350	20
21	Michigan	6	4 677	15	19,792	4 089	20	26,101	46	29,267	24,545	28	10,553	92	25,273	9 833	38	4 889	626	125,642	4,038						92	46 820	789	199,954	42 555	21
22	Minnesota	7	2,509	22	14,721	2 331	17	15 990	42	14,247	15,250	10	1,670	30	5,251	1,300	25	1,459	284	37 516	1 041	4	1,011	72	10 594	747	69	22 699	450	85 329	20 815	22
23	Mississippi	5	2,196	26	13 250	1 840	12	6,877	16	3 539	6 007	4	168	41	5,426	75	4	137	41	6,103	75	4	224	58	8 767	144	29	9 602	245	71,490	8 210	23
24	Missouri	6	3,000	9	16,475	2 075	15	15,878	24	10,563	15,553	7	582	87	10,150	309	14	5,280	209	69,593	4,385						42	24,740	419	96 590	22 408	24
25	Montana	5	389	27	6 105	261	2	2,091		711	2,048	4	273	22	881	152						1	20		196	4	12	2,773	49	7 896	2 465	25
26	Nebraska	3	435	20	5,499	320	10	6,600	23	6,749	6,516	3	450	28	6,624	355	4	93	25	1 035	52						20	7 778	96	20 707	7,243	26
27	Nevada	4	204	18	3 276	168	1	370		110	365	4	345	51	7,354	233											9	919	69	10 770	756	27
28	New Hampshire	1	150	10	1,775	60	3	3,306		1,407	3,293	4	212	30	2,067	136	3	104	21	3,332	63						11	3,592	61	9 081	3,571	28
29	New Jersey	5	3 740	72	24,763	3,684	15	18,264	5	8 693	17 597	22	10,714	357	19,658	8,735	9	3,319	60	41 591	2 471						51	36 027	524	94,630	32 467	29
30	New Mexico	12	1,262	44	12,038	952	5	1,440	11	2,350	1 291	1	24	9	326	9	1	67	12	3,508	43	1	54	10			20	2 847	86	18 252	2 298	30
31	New York	20	14 862	84	75,882	11,533	52	109,281	110	41,522	104,510	31	5,693	119	37,715	1,747	18	21,861	905	302 919	21,358						151	151,637	1,308	458,038	142 208	31
32	North Carolina	6	3,479	65	27,963	2 238	13	12,400	5	12,538	10,443	18	1,201	130	21,165	943	3	442	79	17,296	348	5	348	59	6 077	225	45	17 760	338	85 039	14 497	32
33	North Dakota	5	457	27	4,971	294	3	3 452	2	734	3,345	1	40	3	247	18	4	63	18	2,070	34						13	4 012	50	8,022	3 691	33
34	Ohio	6	5 073		19 935	4,403	27	33 216	30	28 760	31,675	27	4,159	124	22,899	3,510	18	3,552	360	69 855	2 844	1	72	22	3,495	70	79	46,052	542	144,464	42 507	34
35	Oklahoma	13	1,623	101	22,181	1 106	14	11,041	50	18 935	10 015	2	118	22	3 596	65	14	657	170	19,982	319						43	13,329	343	64,694	11 505	35
36	Oregon	3	1,201	6	7,137	1,061	8	6,613	31	10,339	3,503	4	109	33	5 058	138	3	175	20	2 790	43						18	8,188	90	26 224	4 650	36
37	Pennsylvania	10	7,847	54	41,610	6,697	42	47,953	203	52,230	45,442	12	3,237		3,009	3,024	7	3,915	90	24,776	2 602	1	56		72	52	72	63 008	352	121 766	58 247	37
38	Rhode Island	3	1,200	46	10,719	720	4	5,673	24	2,150	5,110						1	205		3 403	132						8	7 138	70	16 361	5 902	38
39	South Carolina	4	1,961	51	20,033	1,201	4	6 651	12	9,278	6 013	14	1,547	220	42,597	1,137	4	627	84	22 359	438	1	40	10	1,414	11	27	10 829	396	96 281	9 490	39
40	South Dakota	9	1,302	46	6,510	1,036	4	2,866		875	2,057	2	57	18	1,500	24	3	86	25	3,052	56						18	4 311	89	11 937	3,723	40
41	Tennessee	7	4,704	15	30,849	3,874	13	8 069	2	9,847	7 632	9	2,305	74	10,472	1,812	4	1,075	144	33,453	838	5	1 040	122	18,054	742	38	17 193	357	102 735	14 893	41
42	Texas	22	11,373	163	81,074	8,301	20	19,029	30	33,767	19,085	43	1,863	423	60,359	1,020	15	769	167	27,338	403	15	2,201	242	45,706	1,715	115	33,235	1 030	248,244	30 540	42
43	Utah	2	228	6	3,404	188	3	2,020		648	1,540	4	331	50	6,036	107	4	805	41	3,842	65						13	2,684	106	14 020	2 360	43
44	Vermont	1	250		4 403	214	5	1,509		880	1,709																6	1,819		5,283	1 923	44
45	Virginia	13	6,703	168	52,142	4 973	15	14 073	184	43,810	14 009	1	30	5	903	10	5	1,021	47	5,211	739	1	33	11	904	15	35	22 555	415	103 036	19 746	45
46	Washington	13	5,290	118	40 887	3,925	8	8 975	15	5,077	8,405	15	3,021	66	21 124	2,411						1	226	20	4,393	140	37	17 512	219	72 081	14 881	46
47	West Virginia	5	1,240	6	7,495	961	13	6,405	29	10 425	6 059	3	101	19	2,007	72	3	307	63	15 936	333						22	8 113	117	35 973	7,425	47
48	Wisconsin	5	2,099	19	10 677	2,330	9	5,771	30	18,190	5,428	59	15,439	82	32,476	14,705	13	704	142	18,861	309	1	28	12	980	23	87	25,031	285	81 204	22,855	48
49	Wyoming	4	1,419	17	10 503	1 044	3	1,093		234	1,054	8	690	133	27,407	401											15	3,208	150	38 144	2 659	49
	Totals (1949)	361	182,254	2,432	1,164 036	144 950	573	656,611	2,105	791,071	618,014	501	103,200	4,801	898,955	85,050	373	71 779	5 877	1,190,285	58 100	69	11 302	1,170	213 778	8 469	1 937	1 025,155	16,385	4,258,785	915,843	
	(1948)	372	185 008	2,343	1,185 874	147,159	567	618,386	2 056	817 630	611,410	530	101,327	4,307	851,655	82,450	368	73,707	5 867	1,222 070	58 075	63	11 159	1,094	213 262	8 465	1 900	1 019,767	15 757	4 290 491	907 569	
	(1947)	401	213,204	2 444	1,285,126	168,133	563	626,648	1,932	737 402	585,747	526	101,402	4,352	784,499	82 803	309	78,184	5 808	1,208,546	60 493	58	10 707	1,028	188 771	7,657	1,917	1 030,205	15,724	4 204 344	904 009	
	(1946)	464	261 480	2,092	1,949,711	218,246	557	628,363	1,876	648 538	579,782	514	102 071	4,315	704,772	79,758	363	76,534	5 836	1,109 573	57 283	64	11,280	1,009	185,569	7 863	1 932	1 082,734	15 728	4 598,163	937 932	
	(1945)	705	546 384	3,923	4 047 949	391 935	549	619,042	1,740	559,352	560,783	508	102,121	4,294	611,468	77,510	350	77,305	5 657	1 014 874	56,418	62	11,206	966	162 470	7,703	2 183	1 356,718	16,556	6 399 113	1 114 414	
	(1944)	798	561,136	3,462	4,287,271	303,875	530	609,026	1 690	566,224	570,441	501	102,544	3,889	571,581	77,856	305	79,637	5,491	993,423	57 417	56	9,887	757	133,721	6 594	2 262	1 552 278	15,289	6 545,220	1 016 183	
	(1943)	827	476 673	2,396	4 032 607	263 746	531	616,115	1 628	543,258	571,576	611	100,151	3,763	581,706	77,780	354	77,819	5 215	942,628	57 848	61	11 321	842	162 628	7 773	2 284	1 276 139	13,830	6,262,827	983,732	
	(1942)	474	220 938	1 206	1 675,722	147,094	530	606 437	1 618	601 481	566,457	505	98 997	3,612	606,390	76 948	354	79 252	4,847	990,087	60,982	61	10 157	645	126 395	7,157	1 924	1 015 781	11,828	4,009 675	858 038	
	(1941)	428	170,202	1,006	1 208,112	118,890	530	600,320	1,572	620,231	561,620	512	98,227	3 288	643,740	83 214	337	78,060	5 045	999,559	61,019	57	9,702	683	130 960	7,149	1 864	965 511	11,494	3,662 602	831 892	
	(1940)	396	108,028	1,089	557,137	86,604	521	572,079	1,347	583 274	539,934	514	102,340	3,007	616 247	87 029	332	79 045	4,390	930 850	63 644	64	11,297	630	126 487	7 401	1 767	873 680	10,559	2 869,004	784 672	
	(1939)	329	96 333	823	477,417	80 6 2	523	560 575	1,234	588,907	527 800	501	100 976	2,748	589,280	86 177	320	77,231	4 210	951,295	61,766	67	10,026	589	127,386	7 513	1,740	845,146	9 691	2,734,375	764 048	
	(1938)	330	92,248	772	445,891	75,470	523	541 270	1 127	549 637	512,839	490	96 621	2,581	552 066	80 262	317	75 180	4 089	928,924	61 000	68	9 808	542	130,762	7,110	1,728	815 136	9 111	2 607 280	736 097	
	(1937)	329	97 951	734	439 480	80,810	522	508 913	1 111	511 809	485,891	484	93,379	2,641	549,332	80,576	324	79 303	3,937	897,085	64,028	63	9 138	499	111 619	6 667	1,722	788,749	9 277	2 509 025	718 880	
	(1936)	323	84,234	675	426,540	68,752	524	503 306	1 136	534,652	478,778	484	87,541	2 388	497,706	76,277	332	78,950	3 947	885,053	65,508	61	9 809	496	108,873	7,520	1 724	763 840	8 642	2 452 869	696 895	
	(1935)	316	83 353	604	382 980	64,495	526	483 994	1,186	513,345	462,070	490	90,904	2,375	476,276	79,280	328	73 322	3,742	809 051	60 751	64	10,139	610	111 398	8,025	1 724	741 712	8 417	2,293 052	674 921	
	(1934)	313	77,665	560	324,354	58,209	544	473,035	1,154	474,539	447,014	496	83,919	2,404	453,425	71,167	328	71,931	3,080	792,887	59,891	68	11,138	548	113 800	8,729	1,749	717,898	8 346	2,150 005	645 000	

of beds, now totaling 705,423 compared with 691,499 in 1948 Thus the facilities for psychiatric care represent 49 per cent of all hospital beds Increases occurred in all categories except in the county hospitals and those operating as nonprofit associations In these, however, the reductions were only slight The psychiatric hospitals in the nongovernmental group have 20,010 beds, whereas the governmental division has 685,413, or 97 per cent of all beds available in this field It should be further noted that the state hospitals alone can accommodate 593,581 psychiatric patients

In the tuberculosis field the number of beds increased from 81,993 to 83,470, a total which represents 5 8 per cent of the hospital beds While there were slight gains in the church-related hospitals and the individual and partnership group, the nongovernmental classification showed a net loss of 56 beds On the other hand, the tuberculosis hospitals operating under governmental control increased their capacity by 1,533, although minor reductions were observed in the state municipal and city-county groups In table E it will be noted that tuberculosis facilities are centered chiefly in the hospitals operating under governmental control These institutions report a total of 73,032 beds, the nongovernmental hospitals 10,438 Other hospital groups with 75,454 or 5.2 per cent of the total bed

TABLE 1—HOSPITAL FACILITIES BY STATES AND BY CONTROL
B NONPROFIT ORGANIZATIONS

Marginal No		Church Related (Nonprofit)					Nonprofit Associations					Total Nonprofit					Marginal No
		Hospitals	Beds	Bassinets	Patients Admitted	Average Census	Hospitals	Beds	Bassinets	Patients Admitted	Average Census	Hospitals	Beds	Bassinets	Patients Admitted	Average Census	
1	Alabama	10	1,121	213	44,599	825	14	1,484	189	37 323	1,074	24	2 605	402	81,922	1 899	1
2	Arizona	8	1 116	178	31,945	871	17	955	149	22 097	555	25	2 071	327	54,042	1 426	2
3	Arkansas	11	1 252	259	49 679	952	13	858	113	25 456	519	24	2 110	372	75 135	1 471	3
4	California	53	7 221	1 573	280 055	5,825	89	9 494	1 454	325,201	7,376	142	16 715	3 027	605,256	13 204	4
5	Colorado	30	3 068	553	105 001	2,390	30	2 493	181	31 658	1 025	60	5,561	734	136 659	3,415	5
6	Connecticut	7	1 867	293	59 086	1 466	40	6 533	934	162,159	4 738	47	8 400	1,227	221 245	6 204	6
7	Delaware..	1	115	30	2 504	63	8	1,139	189	29 655	769	9	1,254	219	32 400	832	7
8	District of Columbia	5	1 703	223	43 708	987	9	1,225	322	48,557	1 184	14	2 928	545	92 265	2 171	8
9	Florida	10	1 306	283	45,375	871	42	2,879	532	67,508	1 516	52	4,185	815	112,883	2,387	9
10	Georgia	6	826	131	30,310	650	25	2,225	351	73 021	1 600	31	3 051	482	103,331	2 250	10
11	Idaho	12	910	222	35,337	637	7	220	48	2 720	108	19	1 130	270	38 057	745	11
12	Illinois	91	13,993	2 478	422 609	11 464	110	12 472	2 194	372 005	9 638	201	26 465	4 672	794 614	21 102	12
13	Indiana	29	5 148	1 015	180,924	4 128	21	1 752	332	59,844	1,304	50	6 900	1,347	240 768	5 432	13
14	Iowa	44	5 403	960	178,987	4,315	26	1 353	293	48,856	979	70	6 756	1,253	227,843	5 294	14
15	Kansas	39	3,958	809	182 180	3 123	24	1 082	207	82 075	756	63	5 040	1 016	264,255	3 879	15
16	Kentucky	23	2 742	511	95 180	2 074	32	2 228	354	64,809	1 483	55	4,970	865	159,989	3,557	16
17	Louisiana	12	2 006	366	80,222	1 468	22	1 633	239	56 159	1 103	34	3,639	605	136 381	2,571	17
18	Maine	7	548	99	16 944	427	31	2 043	423	60 052	1 474	38	2 591	522	76 996	1,901	18
19	Maryland	9	1 784	243	45 144	1,388	34	4,939	618	109,174	3 748	43	6 723	861	154,318	5 136	19
20	Massachusetts	17	2 862	523	79,996	2,387	113	12 145	2,186	319 522	8,814	130	15 007	2 709	399 518	11,201	20
21	Michigan	36	5,229	1,232	192 791	3,885	100	9 239	1 646	282,284	7 076	136	14 468	2,878	475 075	10,961	21
22	Minnesota	40	4,532	803	161,578	3 720	74	4 408	880	145,254	3,546	114	8 940	1 683	306,832	7,266	22
23	Mississippi	6	713	122	30 142	509	35	1,512	349	60 068	976	41	2,225	471	90,210	1 485	23
24	Missouri	40	6 488	1,117	183,598	5 411	39	3,824	536	98,925	3 081	79	10,312	1 653	282 523	8 492	24
25	Montana	25	2 158	405	67 226	1,512	11	454	128	17 001	273	36	2 612	533	84,227	1 785	25
26	Nebraska	34	2 941	578	94 608	2,293	15	749	175	26 143	557	49	3 690	753	120 751	2 849	26
27	Nevada	2	132	28	5 167	95	1	35	7	583	13	3	167	35	5 750	108	27
28	New Hampshire	4	438	83	14 040	331	23	1,573	342	47,224	1 055	27	2 011	425	61 264	1,386	28
29	New Jersey	17	3,595	576	95,911	2 608	82	9 609	1,838	270 141	6,809	99	13,204	2 414	366 052	9 417	29
30	New Mexico	17	1 053	222	29 395	707	8	379	47	8 064	203	25	1 432	269	37 459	910	30
31	New York	72	11 973	2 001	279 747	9 664	222	35,833	4,918	867 818	27,975	294	47,806	6 919	1,147,565	37 639	31
32	North Carolina	13	1 496	377	49,892	1,144	86	7 026	1,313	255 706	5 066	99	8,522	1,690	305,598	6 210	32
33	North Dakota	26	1,976	409	66 567	1,355	9	578	106	17 401	420	35	2,554	515	84 068	1 775	33
34	Ohio	47	8 408	1 449	299 694	6 865	97	10 718	1,951	369 197	8 404	144	19 126	3 400	668 891	15 469	34
35	Oklahoma	13	1 656	361	55 037	1 255	12	903	142	29 280	575	25	2,559	503	84,317	1,830	35
36	Oregon	19	2,541	541	94,303	2,010	15	869	148	29 187	661	34	3 410	689	123 490	2 671	36
37	Pennsylvania	38	6 322	1 098	150 033	4 628	208	30,845	5 150	830,509	24,561	246	37 167	6 248	980,542	29 189	37
38	Rhode Island	3	445	60	8 145	337	13	1,910	378	52 159	1 500	16	2 355	438	60,304	1,837	38
39	South Carolina	7	656	137	24 917	511	21	1,979	351	64 620	1,356	28	2 635	488	89 537	1,867	39
40	South Dakota	18	1 677	334	53 964	1,292	13	860	134	25 069	508	31	2,537	468	79 033	1,800	40
41	Tennessee	14	2 236	366	83,047	1 614	26	2 277	397	68 173	1 670	40	4,513	763	151,220	3,284	41
42	Texas	55	6 224	1,835	264 046	4 766	75	4,112	551	107,367	2,264	130	10,336	2 386	371 413	7 030	42
43	Utah	10	1,386	369	47,805	1 001	6	184	71	7 402	123	16	1,570	440	55 207	1,124	43
44	Vermont	3	305	63	8,218	211	19	1,897	257	37 707	1 530	22	2 202	320	45,925	1 741	44
45	Virginia	4	554	111	17 752	369	45	4 088	859	143 761	2 856	49	4 642	970	161,513	3,225	45
46	Washington	24	3 132	704	112,584	2 261	36	3,353	677	124,205	2,513	60	6 485	1,381	236 789	4 774	46
47	West Virginia	8	1 147	225	44 421	972	18	2 091	282	57,922	1 488	26	3 238	507	102 343	2 460	47
48	Wisconsin	64	8,343	1,567	258 841	6 448	48	2 692	587	93 187	2 041	112	11 035	2 154	352 028	8 489	48
49	Wyoming	5	108	39	4 748	51	3	121	27	3,907	57	8	229	66	8 655	108	49
	Totals (1949)	1 090	146,315	27 604	4 758 092	114 408	2 067	213 576	35,625	6 089 035	159,560	3 157	359,891	63,229	10 848 077	273 968	
	(1948)	1 068	144 036	27 645	4 719 967	115,225	2 016	208 936	34 990	5,933,318	159,825	3 084	352 972	62 635	10 653 285	275 050	
	(1947)	1,051	141,920	27 145	4 524 859	118 780	1,965	202 671	34 110	5,652 649	158 835	3 016	344,591	61 255	10 177,508	277 615	
	(1946)	1,050	138,093	26 256	4 093 042	115 858	1,942	193,885	33 120	5 100 117	153,590	2,992	331,978	59 376	9 193 159	269,448	
	(1945)	1 036	135 481	25 465	3,887 100	110,557	1 954	195,805	32 497	4 745 712	147 694	2,990	331,286	57 962	8 632,812	258 251	
	(1944)	1 020	133 090	24 948	3 707,991	105 040	1 961	195 624	31,854	4,596 048	144,328	2,981	328 714	56,802	8,304 039	249 368	
	(1943)	1 004	130 488	24 007	3,503,376	101 150	1 952	192 219	30 731	4 456 274	140 095	2,956	322 707	54 738	7,959 650	241,245	
	(1942)	977	126 141	22 262	3,211 162	94 521	1,949	190 150	29 154	4,252 456	141 635	2,926	316 291	51 416	7 463 618	236 156	
	(1941)	933	123,331	20 145	2,961,594	90 193	1,917	182 140	26 422	3,931 141	132 474	2,850	305 471	46,567	6,892,735	222 667	
	(1940)	908	120,809	18 561	2 679,876	85 007	1 903	177 671	24,978	3,574,974	125 757	2 811	298 480	43 539	6,254 850	210 764	
	(1939)	1 001	120 740	18 044	2,682,762	81 984	1,839	172 765	23,371	3,503 488	119,342	2,840	293,505	41 415	6 186,250	201,326	
	(1938)	981	119 521	17,320	2,531 796	80,576	1 776	169,980	22,523	3,316,310	117,558	2,757	289 501	39,843	5,848 106	198 134	
	(1937)	975	115,283	16,851	2 495 114	79,118	1 718	162 474	21,511	3 201 042	114,503	2,693	277 757	38,362	5 696,156	193 621	
	(1936)	960	113,288	16,360	2,280 064	74 037	1 751	162,256	21 238	2,972 708	107,510	2 711	275,544	37,598	5,252 772	181,547	
	(1935)	970	113,268	16 033	1,950,308	69,592	1 670	155,300	20,119	2,527,207	98 088	2 640	268,568	36,152	4 477,515	167 680	
	(1934)	970	113 263	16 067	1 786,522	63 851	1 676	154 449	20,184	2,377,213	93 916	2 646	267 712	36,251	4 163 735	157 767	
	(1933)	984	115,840	16 190	1 753,565	63,621											
	(1932)	1 001	117,555	16 125	1,918 214	70 119											
	(1931)	1,011	116,935	15 861	2 013,352	73,911											
	(1930)	1 017	116,846	15 615		75 162											
	(1929)	1,024	113,555	15 037		75 470											
	(1928)	1 056	114 613	13,190													
	(1927)	1,000	108,582			73,818											

capacity are classified by type of service in table D Reference should also be made to table G, which presents a full summary of the registered hospitals with detailed information on beds, bassinets, patients admitted, average daily census and hospital births

Number of Patients Admitted

Comparative Totals	
1948	16,422 774
1949	16,659 973

In the period 1933 to 1945 hospital admissions showed a continuous increase from 7,037,982 to 16,257,402 Then after a reduction to 15,153,452 in the following year, the use of hospital facilities again expanded to 15,829,514 in 1947 and 16,422,774 in 1948 These previous records of over sixteen million admissions in a single year have now been exceeded in the current report of 16,659,973 Compared with 1948 this represnts a net increase of 237,199, the loss of 31,706 in the governmental group being offset by a total gain of 268,905 in the nongovernmental hospitals The federal, state and municipal hospitals had losses of 21,778, 25,959 and 31,785, respectively, whereas the county hospitals gained 47,300 and the city-county institutions 516 Higher admission figures were reported in all nongovernmental groups, with increases ranging from 18,221 in the corporations unrestricted as

TABLE 1—HOSPITAL FACILITIES BY STATES AND BY CONTROL C PROPRIETARY

TOTAL NONGOVERNMENTAL

		Individual and Partnership					Corporations (Profit Unrestricted)					Total Proprietary					Totals of Tables 1B and 1C					
Marginal No		Hospitals	Beds	Bassinets	Patients Admitted	Average Census	Hospitals	Beds	Bassinets	Patients Admitted	Average Census	Hospitals	Beds	Bassinets	Patients Admitted	Average Census	Hospitals	Beds	Bassinets	Patients Admitted	Average Census	Marginal No
1	Alabama	39	1,315	269	43,657	726	13	835	189	27,087	471	52	2,150	458	70 744	1,197	76	4,755	860	152,666	3,096	1
2	Arizona	7	97	20	1,468	46	1	24		117	16	8	121	20	1,585	62	33	2,192	396	56,527	1,458	2
3	Arkansas	30	856	220	29,943	401						30	856	220	29,9 3	401	64	2,966	592	105,108	1,875	3
4	California	82	2 805	389	80,340	2,051	50	2,535	375	77,726	1,807	132	5,340	764	158 066	3,858	274	22,035	3,791	763,322	17,092	4
5	Colorado	13	462	53	6,802	361	3	159	18	2,619	117	16	621	71	9,421	478	76	6,185	805	146,055	4,393	5
6	Connecticut	1	42		216	20	7	538		1,104	423	8	580		1,320	443	65	8,780	1,227	222,505	6,505	6
7	Delaware						1	15	6	350	8	1	15	6	350	8	10	1,269	225	32,819	840	7
8	Dist Columbia	2	45	10	538	25	1	232	61	9 342	212	3	277	71	9,880	237	17	3,210	610	102,145	2,403	8
9	Florida	31	797	182	23,632	412	7	372	91	10,513	203	38	1,169	273	34,015	615	90	5,354	1,088	147,618	3,902	9
10	Georgia	45	1,385	255	43,055	761	10	415	117	17,986	264	55	1,800	372	61,041	1,025	88	4,851	864	104,372	3,275	10
11	Idaho	10	224	55	6 568	136	2	83	30	3,541	60	12	307	85	10,109	196	31	1,437	355	48,796	991	11
12	Illinois	30	1,058	82	10,195	743	17	1,182	92	20,907	883	47	2,240	174	31,102	1,626	248	28,711	4,846	825,716	22,788	12
13	Indiana	15	321	77	11,100	216	5	418	20	12,645	288	20	739	97	23,745	504	70	7,639	1,444	204,513	5,936	13
14	Iowa	25	532	105	17,213	374	5	176	3	4 073	125	30	708	108	21,286	499	100	7,465	1,449	249,129	5,793	14
15	Kansas	12	270	74	6,142	143	2	72	17	2,418	43	14	342	91	8,560	186	77	6,362	1,107	172,815	4 965	15
16	Kentucky	13	575	77	9,757	184	12	364	95	22,246	325	25	939	172	32,003	509	89	5,909	1,037	191 942	4,976	16
17	Louisiana	45	973	271	41,236	507	10	452	54	15,572	281	55	1,425	325	56,808	788	89	5,064	930	193 169	8,350	17
18	Maine	5	120	38	2 525	74	4	124	21	2,897	31	9	244	59	5,422	105	47	2,835	581	82,418	2,066	18
19	Maryland	10	380	8	2,177	287	4	195	20	3 323	109	14	575	28	5,500	396	57	7,293	859	160,418	5,532	19
20	Massachusetts	6	145	19	2,480	111	17	804	126	18,381	572	23	949	145	20,861	683	153	15,936	2,854	420,379	11,944	20
21	Michigan	24	582	135	11 205	501	7	363		3,373	294	31	945	135	14,578	795	167	15,413	3 013	489,658	11,756	21
22	Minnesota	18	324	88	7,983	201	10	832	22	25,277	649	28	1,156	110	33,260	850	142	10,056	1,793	340,092	8,116	22
23	Mississippi	27	856	157	27,474	451	3	94	14	3,128	60	30	950	171	30 602	511	71	3,216	642	120 512	2,006	23
24	Missouri	22	663	155	19 448	418	10	405	139	7,402	284	32	1,068	294	26 850	702	111	11,380	1,947	309,373	9,194	24
25	Montana	4	81	20	1,713	61	2	132	20	4,351	103	6	213	40	6,064	164	42	2,825	579	90,291	1,949	25
26	Nebraska	33	619	209	16,970	327	3	191	22	2,359	155	36	810	231	19,329	482	85	4,509	984	140,050	3,551	26
27	Nevada	1	50	12	2,050	27						1	50	12	2,050	27	4	217	47	7,800	135	27
28	New Hampshire						1	47		56	35	1	47		56	35	28	2,058	425	61,320	1,421	28
29	New Jersey	6	194	18	1 601	151	6	347		905	250	12	541	18	2,506	401	111	13,745	2,432	365,603	9,818	29
30	New Mexico	5	63	16	2,542	29						5	63	16	2,542	29	30	1,500	285	40,001	959	30
31	New York	42	1,649	272	29,307	1,149	34	3,529	631	103,527	2 473	76	5 178	903	132,834	3,622	370	52,984	7,822	1,280,399	41,261	31
32	North Carolina	22	599	123	17,739	341	5	363	32	6,203	232	27	962	155	23,942	573	126	9,484	1,845	329,540	6,783	32
33	North Dakota																35	2,554	516	84,028	1,775	33
34	Ohio	9	350	14	1,211	260	8	551	18	5,732	465	17	901	32	6,943	725	101	20,027	3,432	675,629	16 154	34
35	Oklahoma	42	1,212	300	41,077	709	8	373	68	13,050	234	50	1,585	368	54,127	943	75	4,144	871	141,444	2,773	35
36	Oregon	11	303	76	11,736	177	12	844	125	16,156	620	23	1,147	201	27,892	797	57	4,557	890	151,382	3 563	36
37	Pennsylvania	23	856	76	9,760	654	7	363	33	5,765	264	30	1,219	109	15,525	918	276	38,386	6,857	996,067	30 107	37
38	Rhode Island																16	2,855	438	60,304	1,837	38
39	South Carolina	9	221	44	7,632	76	2	85	13	2,223	57	11	306	57	9,855	133	39	2,041	545	99,397	2,000	39
40	South Dakota	5	79	26	1,841	37						5	79	26	1,841	37	36	2,016	494	80,874	1,897	40
41	Tennessee	45	1,128	248	40,707	680	13	409	96	16,245	262	58	1,537	344	56,952	942	98	6,050	1,107	208,172	4,246	41
42	Texas	224	4,870	1,272	185,622	2,415	45	2,119	409	76,917	1,353	269	6,989	1,681	262,539	3,768	399	17,825	3,567	633,952	10,768	42
43	Utah	6	137	58	4,278	84						6	137	58	4,278	84	22	1,707	498	59,485	1,208	43
44	Vermont	2	41	17	980	23						2	41	17	980	23	24	2,243	337	46,505	1,704	44
45	Virginia	20	664	153	25,037	353	21	1,778	270	60,237	1,397	41	2,442	423	85,274	1,750	90	7,034	1,393	240,787	4,975	45
46	Washington	19	604	116	18,723	419	5	161	30	5,671	96	24	765	146	24,394	515	84	7,250	1,527	261,183	5,289	46
47	West Virginia	13	761	133	29,089	517	21	1,656	281	65,762	1,216	34	2,417	414	94,851	1,733	60	5,655	921	197,224	4,193	47
48	Wisconsin	16	324	96	7,690	101	7	474	26	4,422	397	23	798	122	12,112	538	135	11,833	2,276	364,140	9,077	48
49	Wyoming	8	150	47	4,829	66						8	150	47	4,829	66	16	379	113	13,484	174	49
	Totals (1949)	1,077	29,669	6,099	860,668	17,947	401	24,315	3,673	692,443	17,193	1,478	53,984	9,772	1,553,111	35 140	4,635	413,875	73,001	12,401,188	309 108	
	(1948)	973	27,567	5,668	814,716	17,457	378	23,214	3,536	664,222	17,078	1,351	50,781	9,204	1,478,938	34,535	4,435	403,753	71,839	12,132,283	309,585	
	(1947)	984	28,325	6,137	848,032	18,503	359	22,111	3,262	599 630	16,508	1,343	50,436	9,399	1,447,662	35 011	4,359	395,017	70,654	11,625,170	312 026	
	(1946)	980	28,116	6,114	817,301	17,114	346	20,883	2,927	539,829	15,470	1,326	48,999	9,041	1,357,130	32,584	4,318	385,950	68,417	10,555,289	301,522	
	(1945)	987	30,216	5,597	715,908	17,442	351	20,724	2,986	509,569	15,140	1,338	50,940	8,583	1,225,477	32,582	4,328	382,226	66,545	9,858,269	290,833	
	(1944)	1,011	27,301	5,648	678,565	16,992	357	21,652	3,052	508,624	16,051	1,368	48,953	8,700	1,187,189	33,043	4,349	377,667	65,502	9,401,028	283,291	
	(1943)	1,031	27,314	5,370	638,999	16,282	384	23,094	3,187	513 202	15,865	1,415	50,408	8,557	1,152,201	32,147	4,371	373,115	63,295	9,111,871	273,392	
	(1942)	1,089	27,996	5,147	576,466	15,615	406	23,769	3,057	495,821	15,621	1,495	51,765	8,204	1,072,287	31,236	4,421	369,046	59,620	8,535,935	267,390	
	(1941)	1,149	28,769	5,054	545,884	16,582	435	24,630	3,048	494,967	15,898	1,584	53,399	8,102	1,040,851	32,480	4,494	358,870	54,669	7,933,586	255,147	
	(1940)	1,174	28,958	4,820	500,040	15,049	449	25,108	3,021	463,654	15,686	1,623	54,066	7,841	963,694	30,735	4,624	352 556	51,880	7,218,544	241,499	
	(1939)	1,190	29,879	4,756	501,860	14,955	456	26,496	2,989	456,759	16,154	1 646	56 375	7,745	958,619	31,109	4,486	349,880	49,160	7,144,809	232,435	
	(1938)	1,188	30,193	4,557	495,553	16,255	493	26,550	3,236	470,136	15,630	1,681	56,743	7,793	965 689	31 885	4,438	340,244	47,636	6,813,905	229,019	
	(1937)	1,183	29,957	4,766	508,359	15,458	530	28,085	3,516	507,077	16,477	1,713	58,042	8,282	1,015,436	31,935	4,406	335,799	46,644	6,711,502	225,556	
	(1936)	1,204	28,496	4,356	437,797	13,672	560	28,511	3,629	497,457	16 462	1,764	57,007	7,985	935,254	30,134	4,465	332,881	45,583	6,104,026	211,081	
	(1935)	1,255	29,913	4,384	413,997	14,212	627	34,946	4,357	532,590	18,697	1,882	64,859	8,741	946,587	32,909	4 522	333 427	44,893	5,424,102	200,589	
	(1934)	1,319	29,429	4,391	366,313	12,046	620	33,072	4,038	458,303	15,985	1,939	62,501	8,429	824,616	28,031	4 585	330,213	44,630	4,988,301	185,098	
	(1933)	1,435	33,385	4,962	381,861	11,746											4,661	332,573	44,649	4,882,444	184,107	
	(1932)	1,522	25,769	5,094	428,256	16,309											4 758	334,987	44,572	5,178,598	198,277	
	(1931)	1,560	30,764	5,352	450,184	17,012											4,797	332,501	44,232	5,322,898	206,095	
	(1930)	1,620	38 597	5,233		19,048											4 907	330,143	43,281		212,645	
	(1929)	1,611	37,977	5,212		20,604											4,870	324,596	41,877		209,881	
	(1928)	1,699	39,710	4,843													5,039	325,600	37,041			
	(1927)	1,682	39,118			21,770											4,998	308,149			201,675	

TABLE 2—HOSPITAL FACILITIES BY STATES AND BY TYPE OF SERVICE (Continued on next page)

Marginal No		General					Nervous and Mental					Tuberculosis					Maternity					Industrial					Eye, Ear, Nose and Throat					Marginal No
		Hospitals	Beds	Bassinets	Patients Admitted	Average Census	Hospitals	Beds	Bassinets	Patients Admitted	Average Census	Hospitals	Beds	Bassinets	Patients Admitted	Average Census	Hospitals	Beds	Bassinets	Patients Admitted	Average Census	Hospitals	Beds	Bassinets	Patients Admitted	Average Census	Hospitals	Beds	Bassinets	Patients Admitted	Average Census	
1	Alabama	86	6 018	1 173	228,777	4,155	7	10,783	7	9,135	10,314	7	673		1 119	601	3	70	55	1,251	50											1
2	Arizona	49	3 010	527	85 228	2 474	2	1,513		836	1 140	12	1 204		4 702	1 156																2
3	Arkansas	60	3 847	709	123 965	2,603	2	6,205		5 207	6 800	3	1,503		2,305	1 625						2	275		5,010	123						3
4	California	260	46 588	4 805	1 076 039	34 010	41	43,561	10	76 050	41,007	20	5 130		6 140	4,850	11	365	242	8 047	231	2	616		11 084	582	2	56		3,772	28	4
5	Colorado	71	8 027	954	180 334	6,370	8	7 410		4 023	7 020	12	1 049		883	784	2	85	27	267	11	2	47		720	14						5
6	Connecticut	37	7,399	1,230	223 503	5,580	15	11,828		5 169	11 931	6	1,570		1,733	1,340																6
7	Delaware	9	1 310	225	31 478	918	3	2,315		1 070	1 936	3	204		203	175																7
8	District of Columbia	16	6,528	707	128 056	5 205	2	7 562	17	1,528	7 040	1	617		303	582	2	137	124	5 621	83						1	100		6 400	65	8
9	Florida	113	10,291	1 704	254 800	6,535	6	7 737	5	4 950	6,866	4	1 139		1 273	1 019	3	73	66	1 163	43						1	10		936	1	9
10	Georgia	107	10,255	1 393	256 391	6 673	7	11 170	6	6 018	11 645	3	1 670		1 621	1 503	2	18	27	309	7	2	110		3 855	95	1	26		2,528	20	10
11	Idaho	37	1,900	435	60 216	1,314	1	1 940		565	1 760	1	70		66	70	1	8	12	57	8											11
12	Illinois	218	35 057	5 253	972 743	27,953	33	52,350	14	21 625	40 701	20	3 746	1	4 231	3,314	7	680	203	7 070	421	1	75		1 370	42	3	107		6 087	122	12
13	Indiana	99	10 931	2 083	357 674	8,580	15	16 356	30	3 935	15,554	10	1 456		1,548	1,331						1	50		665	30	1	12		1,358	4	13
14	Iowa	106	8 610	1 609	280 590	6 521	12	12 161		4,342	12 143	5	808	20	5 190	629	2	130	20	230	73	1	40		414	18						14
15	Kansas	101	8,190	1 414	220,931	6,503	8	9 081		5,501	8 366	3	401		549	427	2	60	40	152	39	2	202		4 091	127						15
16	Kentucky	83	8,311	1,217	237 781	5 700	11	11,145	1	7 938	9,809	6	1 010		1 702	981	3	55	43	1 084	20	1	90		2,216	54	1	38		123	18	16
17	Louisiana	89	10,923	1,376	300 432	7 728	6	8 500	1	3,518	7 981	5	448		678	353	1	63	6	83	20	1	60		604	33	2	93		5 102	61	17
18	Maine	47	3 023	616	80 603	2 205	6	5 210	2	4,343	4 633	4	468		484	360	1	17	3	23	15											18
19	Maryland	48	11 050	1 242	220 053	8 097	17	11 903		7 151	11 560	6	1,223		1 224	1 106											3	100	6	5 053	65	19
20	Massachusetts	137	24 529	3 126	500 256	18,343	32	32,869	14	13 582	33,322	23	4 140	4	5 925	2 084	6	370	330	8 767	244						2	200		6 027	138	20
21	Michigan	180	22 602	3 635	613 372	17 605	22	32,300	4	11,312	30 792	23	4,806	68	10 614	4,207	4	114	88	2 472	163	2	61		1 620	37	1	14		374	1	21
22	Minnesota	160	13 172	2 172	400 051	10 417	14	10,217	17	5 440	15 93	15	1,062		1,603	1 580	3	95	54	1 904	35						1	180		6 709	151	22
23	Mississippi	80	5 209	876	166 643	3,357	7	6,359		4 118	5 886	1	457	1	493	405																23
24	Missouri	100	13 203	2 052	305 037	10,704	17	15 409	1	4,305	15,309	7	2 656		4 802	2,075	7	309	304	6,203	246	3	440		10 168	317	3	60		651	46	24
25	Montana	49	3 374	604	94 058	2,331	1	1,856		402	1 847	1	235		210	201						1	85		2 013	6						25
26	Nebraska	91	5 390	1 029	151 430	3 952	5	6 281		1 433	6,201	1	220		177	171	1	45	25	146	30											26
27	Nevada	13	766	116	18,460	526	1	370		110	365																					27
28	New Hampshire	34	2 493	486	63 183	1 647	3	3 278		1 120	3 215	3	135		131	118																28
29	New Jersey	85	15 723	2,526	490 281	11 740	23	27 087	4	10,227	25,823	15	3 677		4 186	3 021	3	428	416	11,327	200						1	65		2 703	36	29
30	New Mexico	36	2 073	370	54 517	1,310	5	1 225		534	1 135	6	850	1	1 461	646						2	99		1,383	77						30
31	New York	317	66 007	8,573	1 581 901	53,106	57	112 116	55	31 921	107 737	49	10,510		10 650	9 210	12	603	424	20 820	520	2	46	1	508	20	7	655	2	34 320	387	31
32	North Carolina	130	11 435	2 168	357 104	8 044	10	10 739	2	4 738	9 503	19	3 808		6 338	2,087						1	50		703	24	3	70		4,748	45	32
33	North Dakota	43	3 048	557	91 177	2 105	2	3 124	2	520	3 083	1	328		205	202	1	56	6	100	14											33
34	Ohio	118	21 060	3 774	702,778	19 170	28	34 208	1	12,809	33,311	23	3 890		4 177	3 260	9	212	106	7,207	186	1	18		130	4						34
35	Oklahoma	99	6 780	1 105	101,503	4 564	7	9,515	4	3,303	8,057	4	676		909	574	1	25	15	40	1											35
36	Oregon	58	5 144	963	171,866	3 967	7	6 854	1	2 016	3,510	4	456		641	385	1	21	12	130	4											36
37	Pennsylvania	228	42 699	6,552	1,050 961	33 765	41	48 741		15,888	47,302	15	4,248	12	3 533	3,280	8	401	121	2 662	313						4	331	6	11 877	237	37
38	Rhode Island	11	3 055	390	63 586	2 893	4	4 341	4	1,209	4 072	4	952		3 051	614	1	175	175	7 719	147											38
39	South Carolina	55	6 730	619	185 320	4 546	3	5 881	2	2,112	6 094	5	834		922	601											1	15		382	3	39
40	South Dakota	18	3,211	583	91,378	2,310	3	3,458		830	3 047	2	322		357	234																40
41	Tennessee	97	10 191	1 478	282 381	7 589	12	9 818	8	6 657	9 337	9	1,695	3	2 807	1 307											6	145		6 730	42	41
42	Texas	430	27,587	4 548	825,594	17 670	17	10 571		11 489	20 082	17	3 060		4,156	2,203	4	107	49	1 713	59	5	505		11,300	310	8	93		5 503	40	42
43	Utah	29	2 205	570	71 963	1,505	2	1 920		520	1,875	1	100		119	65	1	23	28	727	10											43
44	Vermont	23	1 699	337	50,963	1,216	3	2 185		823	2,282	3	166		289	156																44
45	Virginia	95	13 132	1,800	324 586	9 057	12	14 409	4	9 828	14 054	7	1 457		1 100	1 275						1	16		111	3	3	77		6,014	25	45
46	Washington	93	11 513	1,718	310 402	8,213	8	9,718		3 990	9 187	12	2 797		4 130	2 256	3	36	28	134	16											46
47	West Virginia	65	7 107	1 023	293 257	5 427	7	4 910	2	2 400	4,031	5	1 150		1 925	991																47
48	Wisconsin	130	14 432	2 533	494 852	10 964	18	18 047	8	8,310	17 889	20	2,370		2 347	2 082	1	76	15	290	35											48
49	Wyoming	27	1 717	263	50 556	974	3	1,876		996	1 731	1	34		36	28																49
	Totals (1949)	4 761	574 084	85 502	15 430 311	429 443	606	705 421	226	308 055	665 096	444	93 170	110	113 078	79 470	102	5 037	3 153	98,543	3 350	33	2 015	1	60 160	1 925	52	2 513	11	118 605	1 538	
	(1948)	4 480	576 450	84 107	15 160 002	437,590	586	691 400	270	305 000	634 309	438	81 693	91	105 588	70 481	100	5 226	3 310	93 114	3,598	33	2 010	1	61,817	2 054	46	2 531	13	118 355	1 524	
	(1947)	4 539	592 453	82 303	14 663 105	456 701	585	689 013	259	291 051	651 578	441	81 328	82	99 020	62,575	100	5 442	3,312	100 382	3,020	33	2 011		57 110	1 890	44	2 531	13	116 563	1,553	
	(1946)	4 523	641 331	79 531	14 051,508	496 527	575	674 039	322	271,200	635 769	450	83 187	36	99 741	61 931	101	5,302	3 420	82,101	3 777	34	2 080		50 061	1 838	46	2 710	10	111 417	1 710	
	(1945)	4 744	922 549	78 919	15,228,270	865 105	563	657,303	205	248,850	624 319	449	78 774	54	86,190	59 767	106	5 658	3,511	77 078	3 741	36	2 063		58 301	1 817	42	2 601	8	108 531	1,615	
	(1944)	4 833	925 818	76,570	15 009 103	870 331	563	648 715	206	226 303	618,951	453	79 818	38	88 281	61 095	107	5 702	3 708	81,661	3 805	39	2 803	6	56 074	1 780	42	2 605	6	102 808	1 190	
	(1943)	4,885	850 546	72 839	14 454 038	629,316	575	650 003	210	203 077	610 447	455	79,800	112	91 674	65 302	112	6 085	3 800	84 074	3 908	41	3,270	2	61 210	1 920	40	2,421	6	99 019	1 323	
	(1942)	4 557	594 260	67 115	11 644 288	495 482	586	646 118	216	214 117	600 573	468	82 372	116	101 526	70 005	113	5 903	3 777	80,375	4 171	36	2 896	2	16 793	1 608	42	2 516	10	100,511	1 307	
	(1941)	4 518	563 198	61 772	10 616 947	463 614	596	638 144	219	208 592	603 170	477	82,365	99	101 473	70 577	116	5,318	3 573	61 874	3 175	39	2 060	14	40 101	1 062	41	2 502	1	97 013	1 288	
	(1940)	4 417	462,360	58 043	9 219 196	325 160	602	621 84	161	190 346	590 712	479	78,246	44	99 036	67 007	116	5 647	3 380	60 518	3,531	33	2,702	3	41,835	1 501	41	2 470	1	97 853	1 314	
	(1939)	4 356	444 947	55 183	9 018 316	307,091	600	606 284	110	190 240	577 103	480	75,072	38	99 615	65 187	118	5 553	3 196	59 381	3 552	40	3,215	5	45 035	1 022	41	2 407		99 201	1,320	
	(1938)	4 286	415,324	5 974	8 515 050	292 870	592	591 822	137	198 503	562 337	494	79 072	41	100,801	66,242	120	5 979	3 361	66 115	3 609	37	2,093	2	42 060	1 493	38	1,992		90,803	1 080	
	(1937)	4 415	411 091	51 603	8,310 773	258 280	570	570 [illegible]	124	195 691	546 506	508	76 751	33	101 839	61,800	114	5 466	3 487	59 940	3 150	36	2 835		41 028	1,510	39	1,910	3	95 211	1,115	
	(1936)	4 307	402 605	49 601	7 753 918	271 658	584	548 952	100	184 930	524 073	506	73 602	36	99 231	63 266	125	6 402	3 840	67 025	4 063	41	3 150	10	41 802	1 536	43	2 118	32	99 273	1 113	
	(1935)	4 297	406 171	48 737	6 873 182	261 294	592	579,311	132	173 000	507 209	496	70,373	58	86 113	60 738	121	6 141	3 825	63 693	3 582	52	3 421	11	41 432	1 570	41	2 203	11	97 181	1 080	
	(1934)	4,198	393 425	47,856	6,291,536	237,395	614	513,845	84	172 415	483,481	495	70,063		82,155	59 689	130	7,025	4,131	70,080	4,017	113	5,575	313	99,090	2 423	55	2 703	10	103,720	1,205	

TABLE 2—HOSPITAL FACILITIES BY STATES AND BY E OF SERVICE—(Continued)

Marginal No		Children's					Orthopedic					Isolation					Convalescent and Rest					Hospital Departments of Institutions					All Other Hospitals					Totals					Marginal No
		Hospitals	Beds	Bassinets	Patients Admitted	Average Census	Hospitals	Beds	Bassinets	Patients Admitted	Average Census	Hospitals	Beds	Bassinets	Patients Admitted	Average Census	Hospitals	Beds	Bassinets	Patients Admitted	Average Census	Hospitals	Beds	Bassinets	Patients Admitted	Average Census	Hospitals	Beds	Bassinets	Patients Admitted	Average Census	Hospitals	Beds	Bassinets	Patients Admitted	Average Census	
1	Alabama	1	63		2,231	48	1	50		204	57	1	900		16,783	300	1	12		287	10	8	112		2,725	40						109	19,281	1,235	202,518	15,585	1
2	Arizona						1	50		505	45																					64	6,467	527	91,131	5,124	2
3	Arkansas	1	75	6	1,179	68						1	900	1	14,063	209																69	13,585	719	152,719	11,408	3
4	California	4	429		11,806	315	2	135		2,591	131	2	88	10	273	26	8	250		1,201	201	9	901	1	10,903	518	4	204		377	178	553	93,668	5,063	1,189,597	83,007	4
5	Colorado	1	210	15	7,075	149											1	23		74	23	1	110		893	28						101	17,900	996	201,500	14,411	5
6	Connecticut						1	178		213	149	1	160		574	32	4	200		1,485	184	10	1,225	14	5,698	502	2	347	2	442	309	76	22,957	1,246	240,650	20,027	6
7	Delaware						1	85		194	50											1	378	7	281	366						17	4,322	232	36,232	3,445	7
8	District of Columbia	1	227		8,837	133											1	22		15	13	3	1,003		2,033	480	1	175		48	174	28	16,376	848	154,001	13,769	8
9	Florida	1	30		70	30	3	215		928	117	1	250	1	7,000	200	1	179		979	100	2	79		1,173	16	2	147		120	92	140	20,173	1,776	274,065	15,058	9
10	Georgia	1	40	4	1,170	56	3	250		1,003	268	1	843	5	13,987	553						3	180		2,158	63	1	80		290	65	131	25,323	1,435	320,959	20,808	10
11	Idaho						1	84		108	60											1	30		655	7						44	4,032	447	61,757	3,219	11
12	Illinois	3	558		6,970	195	4	172		310	141	3	448		6,184	180	17	710		4,710	513	9	618	15	13,261	216	3	2,703		1,507	1,603	330	97,163	5,486	1,046,107	84,396	12
13	Indiana											1	110		1,137	40	3	300		6,445	185	7	585		3,900	310	1	23		327	17	135	29,823	2,113	377,348	26,060	13
14	Iowa											1	26	1	377	8	1	18		70	15	3	254		1,530	125						131	22,077	1,650	302,043	19,730	14
15	Kansas																					6	319	1	4,248	127						122	18,306	1,455	241,472	15,478	15
16	Kentucky	1	70		1,288	40	2	125		1,765	118	1	120		3,140	89						2	97		1,099	28	1	100		20	95	111	21,191	1,260	257,856	17,012	16
17	Louisiana						1	60		158	53						1	33		[illegible]	14	1	79		1,294	75	1	450		76	394	108	20,707	1,382	312,351	16,412	17
18	Maine																															58	8,727	621	91,513	7,219	18
19	Maryland	1	14		92	7	2	205		752	100						3	107		385	174	1	259		1,625	221	2	343		213	280	85	25,303	1,248	236,427	21,670	19
20	Massachusetts	3	436	13	11,790	281	5	425		758	310	3	96	25	411	17	1	25		6	10	6	343		4,325	187	5	524		1,440	462	223	64,236	3,512	562,496	56,294	20
21	Michigan	1	200		5,011	156	2	146		784	116	3	250	7	2,819	100	10	543		1,066	354	8	890		8,705	684	3	177		2,408	111	259	62,233	3,802	689,607	54,311	21
22	Minnesota	1	80		2,588	60	4	454		1,603	414						4	200		2,144	223	8	314		3,092	129	2	115		123	114	211	32,795	2,243	425,421	28,931	22
23	Mississippi											2	750	10	20,632	626						1	42		487	2						100	12,817	887	192,302	10,216	23
24	Missouri	2	271		5,562	241	2	156		507	125	1	168	9	2,799	67	1	41		298	33	6	1,608		2,623	796	5	1,730		2,948	1,643	153	36,120	2,366	405,963	31,602	24
25	Montana						1	28	24	300	25	1	20		166	4																54	5,598	628	98,187	4,414	25
26	Nebraska	1	94	18	2,573	68	2	140		843	72						1	55		34	54	3	53	8	1,142	17						105	12,287	1,090	160,787	10,574	26
27	Nevada																															13	1,136	116	18,570	891	27
28	New Hampshire											1	60		46	5						1	54		909	7						39	5,950	486	70,401	4,992	28
29	New Jersey	1	85	7	2,635	38	8	435		3,197	301	5	774		2,852	116	9	405		1,059	377	10	481	3	3,867	910	3	622		214	223	102	49,772	2,956	463,238	42,305	29
30	New Mexico						1	100		358	60																					50	4,347	371	58,253	3,237	30
31	New York	4	443	20	2,257	216	10	1,091		4,010	852	6	1,041		10,532	713	12	1,400		7,639	921	24	5,217	55	14,740	4,338	21	5,263		18,431	[illegible]	521	204,681	9,130	1,738,437	183,469	31
32	North Carolina	1	50	10	1,438	24	3	340		949	287	2	401	3	6,454	236						3	249		1,958	70						171	27,244	2,183	414,579	21,280	32
33	North Dakota											1	10		30	2																48	6,566	565	92,050	5,466	33
34	Ohio	3	531		17,216	419	3	160		512	118						7	327	3	2,752	247	11	962		8,780	453	7	1,012		3,752	1,476	240	66,049	3,974	820,293	58,601	34
35	Oklahoma						2	128		3,238	93	1	160		3,235	50						1	183		3,850	30						118	17,473	1,214	206,138	14,278	35
36	Oregon						1	60		292	60	2	150	1	963	54						2	60		992	29						75	12,745	980	177,606	8,018	36
37	Pennsylvania	5	535		13,957	401	4	493		631	315	5	985	18	3,848	337	13	620		3,125	192	18	1,612		7,048	1,177	7	760		4,303	630	348	101,394	6,709	1,117,833	88,354	37
38	Rhode Island																										1	70		110	70	24	9,493	508	76,665	7,799	38
39	South Carolina						1	60		250	54	1	250	10	6,036	132																66	13,770	931	195,078	11,490	39
40	South Dakota																					1	36		240	20						54	6,027	583	92,811	5,620	40
41	Tennessee	1	75	25	2,293	62	5	231		2,958	175	2	275		4,022	121						4	890		2,039	491						130	23,243	1,464	310,907	19,124	41
42	Texas	2	157		3,085	105	4	271		1,039	170	2	416		10,275	273	5	217		478	178	8	159		5,033	169	3	118		2,625	70	514	52,560	4,597	882,190	41,338	42
43	Utah	1	33		104	33	1	20		63	20																					35	4,391	604	73,505	3,569	43
44	Vermont																					1	12		113	3						30	4,002	337	52,188	3,057	44
45	Virginia						2	137		500	100	1	180	4	3,010	100						4	231		3,765	107						125	29,639	1,808	349,823	24,721	45
46	Washington						2	170		2,027	148											3	228		2,385	88	1	270		596	202	121	24,702	1,746	333,204	20,170	46
47	West Virginia						2	245		1,252	147	1	207	7	3,148	80						2	110	6	1,825	36						82	13,768	1,038	233,197	11,618	47
48	Wisconsin	1	150		4,971	115						3	314		1,357	33	3	92		175	81	6	673	1	3,059	624	2	110	4	44	109	222	36,864	2,561	445,344	31,932	48
49	Wyoming																															41	3,587	203	51,628	2,733	49
	Totals (1949)	42	4,650	118	110,821	3,220	87	6,954	24	30,308	5,327	56	10,304	118	148,354	4,535	109	6,034	3	36,306	4,430	202	20,920	111	132,831	12,917	78	15,052	6	40,392	13,685	6,572	1,439,030	89,480	16,659,973	1,224,061	
	(1948)	39	4,540	105	112,609	3,148	85	6,924	16	35,065	5,031	61	12,073	140	220,776	5,081	97	6,516	20	37,242	4,689	169	23,361	177	126,235	15,047	72	9,468	2	41,821	8,107	6,335	1,423,520	87,600	16,422,774	1,217,154	
	(1947)	41	4,030	80	100,923	3,277	82	6,519	23	28,124	4,738	65	12,556	193	163,300	5,478	93	5,840	20	32,339	4,200	194	22,516	161	140,276	14,739	69	7,577	2	34,268	6,626	6,276	1,425,222	86,378	15,829,514	1,217,220	
	(1946)	42	4,490	110	96,026	3,257	82	6,518	19	26,960	4,700	70	11,497	220	146,836	5,240	97	6,579	30	32,603	3,852	202	21,253	128	144,664	13,566	68	7,808	4	34,231	7,278	6,280	1,468,714	84,145	15,153,452	1,239,454	
	(1945)	44	4,770	81	90,097	3,495	83	6,679	19	29,154	4,781	63	8,406	87	99,599	3,223	102	9,556	32	57,385	7,009	168	17,720	52	112,211	11,093	111	21,814	40	61,621	19,222	6,511	1,738,944	83,131	16,257,402	1,405,247	
	(1944)	44	4,450	30	85,243	3,096	84	6,864	10	29,435	4,673	61	8,300	67	48,387	2,864	109	13,825	34	61,548	7,993	210	24,484	97	153,057	15,927	67	6,252	10	43,265	5,531	6,611	1,729,945	80,791	16,036,848	1,299,474	
	(1943)	40	4,104	19	84,404	2,705	84	7,025		34,871	5,020	55	8,318	44	49,570	3,219	126	12,453	42	34,847	8,211	203	20,224	56	141,658	13,280	39	3,884	4	28,188	3,450	6,655	1,649,254	77,134	15,374,698	1,257,124	
	(1942)	43	4,314	44	84,750	2,908	79	7,313	29	36,178	5,516	52	6,279	33	37,936	2,087	139	9,793	40	35,929	8,041	194	18,532	64	145,865	12,300	36	3,501	2	27,370	2,840	6,345	1,383,827	71,448	12,646,010	1,126,028	
	(1941)	52	6,067	337	117,428	4,130	82	7,382	10	38,270	5,691	53	6,356	21	36,399	2,073	136	9,630	36	38,862	7,967	219	27,037	118	174,335	20,593	30	3,122		22,704	2,678	6,358	1,324,381	66,163	11,596,188	1,087,039	
	(1940)	46	4,781	137	92,231	3,263	84	7,032	15	37,294	5,858	57	7,350	25	40,513	3,114	142	8,721	35	36,594	6,776	226	21,702	62	156,436	15,318	33	3,230		23,463	2,682	6,291	1,226,245	61,939	10,087,548	1,026,171	
	(1939)	48	5,151	146	95,137	3,524	82	7,706		36,801	5,752	60	7,100	6	30,279	2,635	139	8,821	36	34,101	6,948	232	25,014	40	166,927	18,200	30	2,796	4	18,882	2,320	6,226	1,195,026	58,764	9,870,244	996,483	
	(1938)	52	5,410	115	93,420	3,701	75	7,125		33,386	5,620	54	6,145	17	34,017	2,611	121	5,846	34	36,205	4,305	235	21,808	112	142,714	14,730	63	10,925	4	36,165	7,069	6,166	1,161,380	56,747	9,421,075	965,706	
	(1937)	51	5,389	111	89,584	3,714	75	6,880	10	33,015	5,563	56	6,187	23	37,295	2,638	120	5,563	38	29,411	3,965	240	21,821	61	144,189	14,498	65	9,000	8	44,569	7,033	6,128	1,124,548	55,566	9,221,517	914,436	
	(1936)	52	5,279	150	89,916	3,422	71	6,333	10	30,499	5,127	61	6,896	84	37,063	2,886	130	6,039	38	32,504	4,191	282	25,213	293	167,227	17,831	84	10,033	17	50,608	8,428	6,189	1,096,721	54,226	8,616,885	909,516	
	(1935)	51	4,874	118	83,015	3,115	68	6,394	12	28,280	5,010	66	7,384	70	47,004	3,301	135	6,233	34	28,218	4,437	275	20,793	234	143,434	13,859	80	11,778	48	47,593	10,240	6,246	1,075,139	53,310	7,717,154	875,510	
	(1934)	58	5,386	146	87,571	3,629	69	6,389	12	28,076	5,003	71	7,430	45	38,949	2,934	125	5,456	45	24,083	3,580	312	21,932	310	135,272	14,590	94	8,132	35	36,730	6,462	6,334	1,048,101	53,026	7,147,416	830,098	

to profit to 155,767 in the hospitals classified as nonprofit associations. In the church-related hospitals, the net gain was 39,025, in the individual and partnership group 55,892.

The governmental hospitals with 71.2 per cent of the hospital beds had 4,258,785 admissions, or 25.6 per cent of all patients admitted in 1949. Included in this total are 1,164,096 admissions in the federal group, of which 460,755 were reported by hospitals operated by the Veterans Administration. The nongovernmental hospitals, which admitted 12,401,188 patients, had 74.4 per cent of the total number of admissions. These include 4,758,992 patients in church hospitals and 6,089,085 in other nonprofit associations, indicating that the nonprofit group with a combined total of 10,848,077 accounts for 65.1 per cent of the patients admitted in all registered hospitals. The proprietary hospitals admitted 1,553,111.

The statistics on hospital admissions should also be studied in relation to the type of service involved. Thus in table D it will be noted that the general hospitals received 15,450,311, or 92.8 per cent of all patients admitted. This represents an increase of 290,249 over 1948, with gains reported in all governmental and nongovernmental classifications except in the federal and municipal groups. The general hospitals operating under governmental control admitted 3,622,561 patients, the nongovernmental group 11,827,750. There was likewise an increase in the number of patients admitted to psychiatric hospitals as indicated by the report of 308,055 compared with 305,000 the preceding year. While the psychiatric institutions, with 49 per cent of the hospital beds, received only 1.8 per cent of the patients admitted, their average daily census of 675,096 exceeds the total patient load in all other registered hospitals. This relationship in the number of admissions and daily census is indicative of the long periods of hospitalization required in the treatment and care of psychiatric patients. In the field of tuberculosis, the admissions advanced from 105,588 to 113,078, with increases recorded mainly in the state and municipal groups. The patients admitted in other divisions totaled 788,529 as shown in table D.

Of every 1,000 patients admitted to the registered hospitals last year, 928 entered general hospitals, 18 were admitted to psychiatric institutions, 7 to tuberculosis sanatoriums, 6 to maternity hospitals, 7 to children's hospitals, 4 to industrial, 7 to eye, ear, nose and throat, 2 to orthopedic, 9 to isolation, 2 to convalescent units, 8 to hospital departments of institutions and 3 to other hospitals. Comparative data on hospital admissions will be found in tables 1 and 2 and other tables accompanying the text. The admission totals, it should be noted, do not include outpatients and hospital births.

Average Daily Census

Comparative Totals

1948	1 217 154
1949	1 224 951

The average daily census like hospital admissions, showed a continuous increase from 1933 to 1945. Reductions occurred in the next three years, but in 1949 the patient load again increased to 1,224,951 compared with 1,217,154 in 1948. Thus the present average, which does not include newborn infants, represents a total of 447,107,115 patient days. In the governmental hospitals, the daily patient load was 915,843 or 74.7 per cent of the total average census in all hospitals. This group showed an increase of 8,274, although there was a loss of 2,209 in the federal classification. The state hospitals alone reported an average of 618,614 of which 572,280 represents the daily care of psychiatric patients. In the nongovernmental hospitals only minor changes occurred, as the present report of 309,108 is nearly identical with the previous census of 1948. It should be noted, however, that the volume of service in the church and other nonprofit hospitals is represented by a daily average of 273,968, or 22.4 per cent of the total patient load, whereas the proprietary group reports a census of 35,140 or 2.9 per cent.

In the general hospitals, the highest census occurred in 1945, when the average for the year was 665,105. This declined to 437,590 in 1948 and to 429,443 in the present survey. The governmental general hospitals which reported 170,351, showed a reduction of 6,529, due to losses in the federal and municipal classifications, while the state, county and city-county divisions were credited with higher census reports. In the nongovernmental group, the average patient load was 259,092, a net decrease of 1,618 compared with 1948. Here the church and other nonprofit hospitals lost 1,978 whereas the individual and partnership hospitals and corporations unrestricted as to profit showed a slight gain of 360. As a group the general hospitals have 35 per cent of the daily patient load in all registered hospitals.

TABLE H.—*Percentage of Beds Occupied*

	1947	1948	1949
According to Ownership or Control			
Federal	78.9	79.5	79.6
State	93.5	94.3	94.2
County	81.4	81.4	83.0
City	77.4	78.7	81.0
City-county	71.1	75.9	74.9
Total governmental	87.8	89.0	89.3
Church	83.7	80.0	78.2
Nonprofit associations	78.4	76.5	74.7
Total nonprofit..	80.6	77.9	76.1
Individual and partnership	64.6	63.3	60.6
Corporations (profit unrestricted)	75.6	73.6	70.7
Total proprietary	69.4	68.0	65.1
Total nongovernmental	79.1	76.7	74.7
According to Type of Service			
General	77.1	75.9	74.7
Nervous and mental	95.7	96.1	95.7
Tuberculosis	76.9	81.1	83.2
Maternity	72.2	65.0	66.0
Industrial	64.1	69.9	65.4
Eye, ear, nose and throat	61.3	60.2	60.6
Children's	70.8	69.5	69.2
Orthopedic	72.7	72.7	76.6
Isolation	43.6	47.1	43.8
Convalescent and rest	72.0	72.0	73.4
Hospital departments of institutions	65.5	64.4	61.7
All other hospitals	86.1	85.6	85.8
Total all hospitals..	85.4	85.5	85.1

The daily census in the psychiatric hospitals for 1949 is the highest average that has been recorded in this field. The current total is 675,096, compared with 664,399 in 1948 and 590,712 in 1940. A net gain of 10,697 occurred in the last year, practically all in the governmental group. The federal classification recorded an increase of 5,084, the state hospitals 6,060 and the corporations unrestricted as to profit 55. Slight losses totaling 502, occurred in the county and municipal groups, the church and other nonprofit associations and the hospitals operating under individual and partnership control. As a group, the psychiatric hospitals have 49 per cent of the bed capacity, yet with only 1.8 per cent of the patients admitted in all registered hospitals they carry 55.1 per cent of the daily patient load. The nongovernmental psychiatric hospitals had an average daily census of 16,451 whereas the governmental group reported 658,645, including 572,280 in state institutions

In the tuberculosis field, the average census increased in the last year from 66,484 to 69,476 Here the principal gains were in the state, county and municipal classifications, although a slight increase was also registered in the individual and partnership group The governmental hospitals reported a daily census of 61,009, the nongovernmental hospitals 8,467 These totals indicate that the tuberculosis hospitals have 5 7 per cent of the average number of patients receiving hospital treatment each day The average census in other groups, representing 4 2 per cent of the total patient load, is shown in table D

TABLE J—*Average Length of Stay Per Patient in General Hospitals, 1947, 1948 and 1949*

	1947	1948	1949
According to Ownership or Control			
Federal	29 8 days	27 9 days	25 8 days
State	16 0 days	15 5 days	15 4 days
County	16 6 days	14 9 days	14 8 days
City	13 2 days	12.9 days	12 5 days
City county	11 7 days	10 0 days	11 8 days
All governmental general	19 5 days	17 9 days	17 2 days
Church	9 0 days	8 4 days	8.3 days
Other nonprofit associations	9 1 days	8 6 days	8 3 days
All nonprofit general	9 0 days	8 5 days	8 3 days
Individual and partnership	6 0 days	5 8 days	5 4 days
Corporations (profit unrestricted)	7 3 days	6 4 days	6 4 days
All proprietary general	6 5 days	6 1 days	5 9 days
All nongovernmental general	8 7 days	8 2 days	8 0 days
All general hospitals	11 4 days	10 5 days	10 1 days

TABLE K—*Births in Hospitals According to Ownership or Control and According to Type of Service*

	1929	1947	1948	1949
According to Ownership or Control				
Federal	2,296	46 081	49,696	60 026
State	9,125	51,700	51,117	59,700
County	17,327	110,620	188,567	141,510
City	45,787	191,576	129,145	180 315
City county	8,806	32,605	36,116	38,714
Total governmental	83,541	441,582	457,541	490,385
Church	209,726	969,053	912,497	944 610
Fraternal	1,730			
Nonprofit associations		1,153,863	1,135,425	1,121,744
Industrial	4,327			
Independent	283,136			
Total nonprofit		2,121,516	2,077,922	2,066,354
Individual and partnership	39,436	166 343	148 116	153,947
Corporations (profit unrestricted)		105,678	110,702	114,105
Total proprietary		272 011	258,818	268,052
Total nongovernmental	538,355	2,395 557	2,330,740	2,334,406
According to Type of Service				
General	566,177	2,756 959	2,715,045	2,744,268
Maternity	53,019	76,079	75,939	72,274
Children's	862			
Hospital departments of institutions	277	103	174	175
All other hospitals	1,561	3,338	2,523	4,074
Total births in all hospitals	621,896	2,837,139	2,704,281	2,820,791

Percentage of Beds Occupied

Comparative Totals	
1948	85 5
1949	85 1

Table H gives comparative data on bed occupancy for the past three years based on hospital control and type of service Compared with 1948 the present report shows a reduction from 85 5 to 85 1 per cent for the entire group The federal hospitals remained at the previous level of 79 5, but the state institutions decreased from 94 3 to 94 2 and the city-county hospitals from 75 9 to 74 9 The average occupancy in the county hospitals, however, increased from 81 4 to 83 0 per cent, while the municipal group advanced from 78 7 to 81 0 Reference to the accompanying table will show that in the past three years there has been continuous increase in the bed occupancy rates of the governmental group as a whole, whereas the nongovernmental classification has shown annual reductions in all divisions In the present survey, the church and other nonprofit hospitals decreased from 77 9 to 76 1, the proprietary hospitals from 68 0 to 65 1

When the hospital reports are examined in relation to the type of hospital service, there is a greater variation in bed occupancy rates The isolation hospitals, for example, which respond chiefly to seasonal demands, reported only 43 8 per cent, compared with 47 1 in the previous year This group showed also a considerable decrease in the number of admissions and in the average daily census The highest level of occupancy is in the psychiatric hospitals, where the report of 95 7 is indicative of long periods of hospitalization with many institutions operating beyond their normal capacity An increased rate of 83 2 per cent was noted in the tuberculosis hospitals, which reported 81 1 in 1948 and 76 9 in 1947 The occupancy rate in the general hospitals has decreased from 77 4 per cent in 1946 to 74 7 in 1949 It should be noted, however, that an average occupancy of 80 to 85 per cent is generally regarded as the maximum limit of operating efficiency in general hospitals

TABLE L—*Hospital Births Classified by States*

	Births		Births
Alabama	40,891	Nebraska	27,250
Arizona	15 998	Nevada	2,477
Arkansas	21,381	New Hampshire	12,818
California	193,348	New Jersey	89,825
Colorado	23,911	New Mexico	10 034
Connecticut	39 994	New York	280 870
Delaware	6 813	North Carolina	68 907
District of Columbia	28,213	North Dakota	14,779
Florida	45 465	Ohio	171 533
Georgia	50 713	Oklahoma	34,338
Idaho	12 023	Oregon	32,335
Illinois	170 925	Pennsylvania	202 592
Indiana	83 703	Rhode Island	16 289
Iowa	49,610	South Carolina	29 979
Kansas	36,149	South Dakota	13 530
Kentucky	43,800	Tennessee	50 048
Louisiana	50 379	Texas	143 049
Maine	16 345	Utah	18 678
Maryland	40,744	Vermont	7,878
Massachusetts	90 241	Virginia	51 838
Michigan	134,520	Washington	52,154
Minnesota	60 012	West Virginia	38,117
Mississippi	23,937	Wisconsin	76 828
Missouri	63,902	Wyoming	6,159
Montana	13,414	Total	2,820 791

Average Length of Stay

Comparative Totals	
1948	10 5 days
1949	10 1 days

The average length of stay per patient in general hospitals is shown in table J, which gives comparative data for the past three years The downward trend reflected in previous surveys is again apparent in the 1949 report, which gives shorter periods of hospitalization in all governmental and nongovernmental groups except in the city-county hospitals and in the corporations unrestricted as to profit As a group, the governmental general hospitals have an average of 17 2 days, with the federal hospitals showing the longest period of 25 8 days The state, county and municipal classification reported averages of 15 4, 14 8 and 12 5, respectively, while the city-county hospitals increased from 10 0 to 11 8 In the nongovernmental group, the length of stay is much shorter as evidenced by the reported average of 8.0 days compared with 8.2 in the previous year. Reductions to 8.3 days were noted both in the church-related hospitals and in the other nonprofit associations. The individual and partnership hospitals decreased from an average of 5.8 days to 5.4, while the corporations unrestricted as to profit remained at the previous level of 6.4.

The present average for all general hospitals is 10.1 days, which may be compared with 10.5 in 1948, 11.4 in 1947, 12.9 in 1946 and 15.9 in 1945. Since 1945, therefore, the average period of hospitalization has been reduced by 5.8 days. This reduction applied to the present total of 15,450,311 admissions in the general hospital group would represent a saving of 89,611,804 days of hospital care.

Births in Hospitals

Comparative Totals	
1948	2 794,281
1949	2,820 791

In the last twenty years, the number of hospital births in the United States has increased from 621,896 to 2,820,791. The two million mark was first exceeded in 1946, while the following year set an all-time high of 2,837,139. The present total is 16,348 less than the previous record but exceeds the 1948 report by 26 510. This increase is related chiefly to the governmental group, where a net gain of 28,844 was reported. The nongovernmental hospitals, on the other hand, had a loss of 13,681 in the institutions classified as nonprofit associations, but this was in part offset by an increase of 11,347 in the church-related hospitals, the corporations unrestricted as to profit and the hospitals operating under individual and partnership control. It should be noted that the governmental hospitals report 486,385 births or 17.2 per cent of the total, whereas the nongovernmental group has 2,334,406, or 82.8 per cent.

In the general hospitals, the number of births increased in the last year from 2 715 645 to 2,744,268. This total, which represents 97.3 per cent of all hospital births, includes 472 363 in the governmental general hospitals and 2,271 905 in the nongovernmental group. The maternity hospitals reported 72,274 births or 3,665 less than in the preceding year. All other hospitals had a total of only 4,249.

TABLE M 1—PROFESSIONAL NURSING PERSONNEL AND SCHOOLS OF NURSING EDUCATION
(Classified by States)

State	Student Nurses	Accredited Schools of Nursing	Schools Offering Affiliating Courses Only: Schools	Schools Offering Affiliating Courses Only: Students	Administrative Nursing Personnel	Full Time Instructors	Supervisors and Asst Supervisors	Head Nurses and Asst Head Nurses	General Duty Nurses: Full Time	General Duty Nurses: Part Time	Nurses Not Classified	Total Graduate Nurses	Private Duty Nurses
Alabama	940	16	2	88	144	49	264	262	1 151	57	61	1,988	256
Arizona	344	5			65	13	106	96	695	25	34	1 034	172
Arkansas	674	8	1	32	84	21	122	158	480	35	40	940	142
California	3 634	41	8	301	652	207	1,123	2 200	10,841	877	651	16 456	2 124
Colorado	1 001	18	2	65	122	76	229	393	1 445	180	103	2,515	[illegible]
Connecticut	2 186	17	6	245	130	133	367	606	2 141	502	134	4 013	814
Delaware	430	6	2	31	81	20	60	93	242	39	4	494	115
District of Columbia	760	8	1	81	76	75	207	379	1,541	216	39	2,533	1,242
Florida	966	14	2	47	163	49	401	475	1 758	123	663	3 632	557
Georgia	1 778	12			169	63	323	531	1 197	85	84	2 442	543
Idaho	492	8	2	10	49	17	77	118	251	84	33	629	38
Illinois	6 830	85	13	1 306	575	405	1,563	1,935	6,294	1,547	354	12 671	2 070
Indiana	2 908	20	2	49	193	127	443	598	1 986	422	61	3 825	606
Iowa	2 135	26	2	143	173	87	438	373	1 663	447	61	3,242	309
Kansas	1 [illegible]46	30			141	72	353	412	1 121	231	114	2 444	302
Kentucky	1,200	13	4	50	127	48	259	325	1 150	83	172	2 164	372
Louisiana	1,339	14	1	46	121	64	272	447	1 215	65	96	2,280	517
Maine	700	10	1	25	87	33	170	180	686	104	59	1 319	255
Maryland	1 791	22	4	240	156	125	338	559	1,341	252	75	2,847	692
Massachusetts	5 600	58	17	646	432	253	1 142	1,937	4,579	[illegible]	354	[illegible]	1 777
Michigan	3 414	32	10	642	387	107	736	1 145	4 643	1 105	243	8 457	604
Minnesota	3,327	30	13	389	254	164	517	903	2 669	755	247	5,510	567
Mississippi	583	19			97	36	176	150	539	22	49	1 069	248
Missouri	2 481	26	10	411	220	109	532	[illegible]	1 869	357	286	[illegible]	682
Montana	617	11	2	70	70	32	131	116	454	156	47	1 006	85
Nebraska	1 049	13	3	85	121	50	196	239	796	212	53	1 667	179
Nevada					14	1	22	30	158	2	22	249	39
New Hampshire	622	13			61	33	122	177	520	88	21	1 022	151
New Jersey	3 011	49	7	287	260	152	612	1 000	3 472	721	122	6 339	1 345
New Mexico	57	2			44	7	68	64	410	30	22	645	69
New York	11 124	95	24	1 329	962	638	2,450	5 157	16,255	2 570	974	29 006	5 386
North Carolina	2 600	40	4	103	223	116	457	520	1 730	127	172	3 345	635
North Dakota	847	10			57	28	130	149	366	59	22	811	46
Ohio	5 002	61	10	679	372	320	954	1 453	5 164	1 447	177	9,887	1 659
Oklahoma	842	12	1	48	135	39	226	241	771	60	34	1 506	295
Oregon	861	10	8	76	109	65	193	244	1 162	198	204	2 175	259
Pennsylvania	10 674	111	22	825	525	511	1 623	2,221	8,571	[illegible]	466	14 817	3,337
Rhode Island	501	6	3	198	52	46	153	224	625	348	36	1 484	131
South Carolina	1 049	16			83	40	240	241	832	60	44	1 540	289
South Dakota	716	9			65	27	112	144	402	60	38	848	64
Tennessee	1 636	15	3	25	146	88	306	510	1,304	99	91	2,544	522
Texas	2 472	33	3	121	539	163	975	1 091	3 322	674	303	7,067	1,313
Utah	436	7			38	33	64	119	425	204	16	899	51
Vermont	331	7			44	21	84	87	389	51	21	697	129
Virginia	2 106	31	3	66	191	95	402	676	1,560	176	130	3 230	817
Washington	1 474	19	8	103	197	74	380	752	2 498	376	141	4 418	327
West Virginia	1 977	20			107	67	260	259	1 009	700	74	2,476	328
Wisconsin	2,261	24	7	210	248	106	505	600	2,533	685	169	4 846	409
Wyoming					29	1	47	47	279	52	8	463	20
Totals	99 006	1 151	203	9,219	9 281	5 259	20,970	31,352	106,508	18 492	7 483	199,295	33,380

Nursing Service

Comparative Totals

Graduate Nurses		Student Nurses	
1948	196,120	1948	100,174
1949	199 295	1949	99,066

In the study of nursing personnel and the training of student nurses reference should be made to the three major reports on nursing service presented in 1948 These include "Nursing for the Future," which appeared under the sponsorship of the National Nursing Council, "A Program for the Nursing Profession" by the Committee on the Function of Nursing and the report of the Committee on Nursing of the American Medical Association published in THE JOURNAL, July 3, 1948, pages 878-879 The latter committee in its report to the American Medical Association advised the establishment of two main classes of nurses (1) professional nurses and (2) trained practical nurses, the professional group being further subdivided into (a) nurse educators and (b) clinical nurses The nurse educators are those with collegiate training and others who have shown a special aptitude for teaching, administration and supervisory positions The clinical nurse is to be comparable to the present general duty or private duty nurse, and it was the further recommendation of the committee that the course of training for clinical nurses should be reduced from three to two years It was likewise the opinion that sufficient bedside nursing care can be obtained economically and efficiently if the professional nursing staff is augmented by trained practical nurses, who under proper supervision will be able to do much of the routine bedside nursing now being done by professional nurses For this group, the committee recommended one year of training consisting of three months' theoretical and nine months' practical training

In the present survey, information was obtained on professional nursing personnel and schools of nursing education as shown in tables M1, M2 and M3 Again there is an increase in the professional nursing personnel in hospitals as evidenced by the report of 199,295 graduate nurses employed exclusive of 33,330 on private duty assignments A slight decrease was noted in administrative nursing personnel, whereas gains were recorded in the supervisory personnel, full time instructors, head nurses and general duty nurses In the latter group, the full time general duty nurses increased last year from 104,041 to 106,508 Further distribution of the professional nursing personnel in hospitals will be found in the tables classified by control and by type of service

TABLE M 2—PROFESSIONAL NURSING PERSONNEL AND SCHOOLS OF NURSING EDUCATION
(Classified by Control)

Control	Student Nurses	Accredited Schools of Nursing	Schools Offering Affiliating Courses Only: Schools	Schools Offering Affiliating Courses Only: Students	Administrative Nursing Personnel	Full Time Instructors	Supervisors and Asst Supervisors	Head Nurses and Asst. Head Nurses	General Duty Nurses: Full Time	General Duty Nurses: Part Time	Nurses Not Classified	Total Graduate Nurses	Private Duty Nurses
Governmental													
Federal	178	2	11	278	555	275	1,288	4 096	12,653	104	639	19,010	56
State	4,503	53	69	3,653	690	464	1,973	3,574	5,906	884	409	13,699	629
County	2,897	35	15	600	659	166	1,259	1,721	6,289	855	802	11,751	599
City	5,679	56	21	1,180	621	366	1,395	2,053	10,197	1,257	363	16,252	1,245
City county	1,201	16	2	107	84	52	213	331	1,107	135	75	2,087	258
Total governmental	14,512	162	118	5,811	2,609	1,323	6,128	11,775	36,241	3,235	2,288	63,599	2,687
Nongovernmental													
Church	43,430	497	25	1,122	1,970	1,901	6,158	7,549	23,950	5,116	2,051	48,695	11,000
Nonprofit associations	39,434	460	61	2,233	3,330	1,950	7,226	10,641	40,626	8,661	2,537	74,971	17,277
Individual and partnership	47	10	1	18	891	25	661	580	2,809	1,089	259	6,314	863
Corporations (profit unrestricted)	1,254	22	1	32	481	60	797	807	2,882	391	298	5,716	1,503
Total nongovernmental	84 524	989	88	3,405	6,672	3,936	14,842	19,577	70,267	15 257	5,145	135,696	30 643
Total all hospitals	99,066	1,151	206	9,210	9,281	5,259	20 970	31,352	106,508	18,492	7,433	199 295	33,330

TABLE M 3—PROFESSIONAL NURSING PERSONNEL AND SCHOOLS OF NURSING EDUCATION
(Classified by Type of Service)

Type of Service	Student Nurses	Accredited Schools of Nursing	Schools Offering Affiliating Courses Only: Schools	Schools Offering Affiliating Courses Only: Students	Administrative Nursing Personnel	Full Time Instructors	Supervisors and Asst Supervisors	Head Nurses and Asst Head Nurses	General Duty Nurses: Full Time	General Duty Nurses: Part Time	Nurses Not Classified	Total Graduate Nurses	Private Duty Nurses
General	97,611	1,122	38	1,980	7,317	4,650	17,354	25,254	93,948	17,031	6,622	172,206	32,142
N & M	1,135	26	83	4,233	674	380	1,807	3,534	4,500	182	240	11,326	386
Tuberculosis			31	900	518	82	807	1,229	3,414	269	232	6,551	104
Maternity			9	533	94	31	143	310	679	211	69	1,537	43
Industrial					33	1	27	55	451	13	22	602	62
I L N T			2	21	48	4	83	91	383	51	53	713	152
Children's	320	3	25	1,013	88	57	175	252	647	111	62	1,422	123
Orthopedic			8	82	120	6	183	101	504	70	83	1,116	51
Isolation			8	427	58	10	60	74	431	26	18	686	22
Convalescent and rest			1	8	91	2	61	37	326	442	9	968	63
Institutions					120	7	110	115	616	56	25	1,049	14
All other hospitals			1	6	90	20	160	180	600	21	48	1,119	139
Total all hospitals	99,066	1,151	206	9,210	9,281	5,259	20,970	31,352	106,508	18,492	7,433	199,295	33,330

The accredited training schools preparing students for a career in professional nursing reported 99,066 students, compared with 100,174 in 1948 While this is a relatively small change, it should be noted that the number of schools decreased from 1,163 to 1,151

TABLE N 1—*Auxiliary Nursing Personnel and Schools of Practical Nursing (Classified by States)*

State	Schools of Practical Nursing	Practical Nurse Students	Practical Nurses Employed	Attendants	Nurses Aides	Ward Maids	Orderlies
Alabama..	1	16	451	1 583	815	482	357
Arizona	1	49	36	540	316	123	137
Arkansas	3	31	506	1 234	378	213	136
California	8	269	2,167	10 206	3 728	1,424	2,144
Colorado	7	101	324	5 275	855	208	218
Connecticut..	4	53	247	1 019	845	401	521
Delaware..			*23*	*276*	*194*	*54*	*49*
District of Columbia	1	232	220	1,840	594	299	246
Florida	1	30	522	950	1,848	429	579
Georgia ..	6	76	759	1 608	923	641	1 211
Idaho	1	2	158	208	181	57	26
Illinois.	5	198	1 156	6 761	4 459	1,199	1 301
Indiana	2	12	478	1 819	1,870	464	303
Iowa	2	42	358	1,386	1,324	372	199
Kansas..	1	41	220	1,878	1,215	192	136
Kentucky	7	71	882	1 618	1 125	275	293
Louisiana..	3	63	501	1 760	959	409	296
Maine			110	821	139	188	38
Maryland	8	212	822	1 759	864	646	1 167
Massachusetts	13	313	879	6,344	1,248	1,349	950
Michigan..	17	246	1 485	6 180	2,609	1 025	831
Minnesota	12	246	1,086	1,339	2,196	657	370
Mississippi	5	42	304	901	392	243	207
Missouri	3	48	897	8,302	1 793	547	430
Montana..	3	45	96	249	376	91	44
Nebraska	3	64	317	906	987	159	154
Nevada			12	63	97	10	21
New Hampshire..	1	8	113	337	82	123	113
New Jersey..	2	27	706	2,880	1 107	1 004	838
New Mexico	1	19	110	289	213	125	63
New York..	20	682	7,327	22,325	3 786	2,233	3,154
North Carolina	6	73	670	1,059	1,205	649	888
North Dakota	1	5	80	266	302	89	79
Ohio	5	56	781	5 153	4 764	1 092	964
Oklahoma	4	48	637	1,213	732	193	185
Oregon..	4	37	465	851	697	216	84
Pennsylvania	10	126	994	5 099	2,511	1,750	1 753
Rhode Island	1	31	151	561	133	182	291
South Carolina	1	42	202	509	437	315	274
South Dakota	1	19	73	250	382	105	191
Tennessee	9	150	1,018	1 707	1,177	858	350
Texas	44	863	2,496	3 668	3 442	1,592	1 409
Utah			160	339	819	66	62
Vermont.	1	10	72	314	57	87	28
Virginia..	6	194	790	2,435	572	595	730
Washington	1	23	865	1 726	1 162	309	382
West Virginia..			201	712	890	801	449
Wisconsin	7	75	790	2,860	1 701	955	207
Wyoming			65	309	137	7	13
Totals	242	5 050	33 272	118 397	58 169	24,503	24,970

A further classification of the schools of nursing education and student enrolment will be found in tables M2 and M3 An encouraging report has been issued by the National League of Nursing Education indicating that 43,612 student nurses were admitted in 1949, a total which exceeds all previous reports except for the war years of 1942-1945 The nurse recruitment program is now carried out by the Committee on Careers in Nursing sponsored by the national nursing organization

Auxiliary nursing personnel and schools of practical nursing are classified in tables N1 N2 and N3 by states hospital control and type of service The training and employment of practical nurses having been officially recommended by the American Medical Association, it is of interest to observe in the present report that 242 hospitals maintain schools of practical nursing with an enrolment of 5,050 students Full information is not available regarding accreditation of training programs in this field, but it has been reported that 95 schools are currently approved by various states and the National Association for Practical Nurse Education The number of practical nurses employed in hospitals is now 33,272, the number of attendants 118,397 Last year, these categories were listed under the combined total of 141,834 The report of 58 169 nurses' aides represents a large increase over the previous year when this group was classified as volunteer nurses' aides There was a considerable decrease however in the number of ward maids and orderlies each group reporting approximately 25 000 compared with 35 000 in 1948

TABLE N 2—*Auxiliary Nursing Personnel and Schools of Practical Nursing (Classified by Control)*

Control	Schools of Practical Nursing	Practical Nurse Students	Practical Nurses Employed	Attendants	Nurses Aides	Ward Maids	Orderlies
Governmental							
Federal	4	193	678	29,203	1,384	1 133	4,282
State..	29	646	3,211	64,982	3 856	1,567	2,363
County	11	290	3,259	7 636	4,809	1 945	2 718
City	12	351	2 718	7 787	3,247	2,522	2 425
City-county..	4	98	356	403	750	357	711
Total governmental	60	1,578	10,222	110 011	14 046	7,524	12 499
Nongovernmental							
Church	35	1 098	4 999	2,037	19 463	6 749	3,214
Nonprofit associations	91	1,627	10,697	4 082	21,262	7,756	7,303
Individual and partnership	41	478	4,546	483	1,825	1,510	992
Corporations (profit unrestricted)	15	359	2,808	1,184	1,573	904	956
Total nongovernmental	182	3,472	23 050	8,386	44 123	16 919	12 471
Total all hospitals..	242	5,050	33,272	118,397	58 169	24,503	24,970

TABLE N 3—*Auxiliary Nursing Personnel and Schools of Practical Nursing (Classified by Type of Service)*

Type of Service	Schools of Practical Nursing	Practical Nurse Students	Practical Nurses Employed	Attendants	Nurses Aides	Ward Maids	Orderlies
General	183	3 623	22,894	29 606	50,903	20 176	20 143
N & M	25	597	3 563	80 239	1,880	1 142	1,340
Tuberculosis	11	178	3 603	4 720	2 423	1 588	1 780
Maternity	2	29	341	103	829	290	10
Industrial	1	17	30	71	107	140	166
E E N T			177	35	140	101	119
Children's	5	68	138	91	488	283	69
Orthopedic.	1	15	538	565	586	200	207
Isolation			109	297	73	109	66
Conv and rest	3	70	395	70	209	110	85
Institutions..	1	22	673	1 072	18	153	543
All other hospitals	10	431	811	1,522	513	211	412
Total all hospitals	242	5 050	33 272	118 397	58 169	24 503	24,970

HOSPITALS REGISTERED BY THE AMERICAN MEDICAL ASSOCIATION

The following list contains the names of 6,572 hospitals, sanatoriums and related institutions that are located in the United States, 129 in Alaska, Canal Zone, Guam, Hawaii, Puerto Rico and Virgin Islands, and 28 in the European and Far Eastern Commands of the United States Army The list for each state is presented in two groups (1) hospitals and sanatoriums and (2) related institutions The related institutions include infirmaries, nursing homes and other institutions designed to give certain medical and nursing care in an ethical and acceptable manner, without giving a full hospital service.

Registration is a basic recognition extended to all hospitals and related institutions in accordance with the requirements outlined in the Essentials of a Registered Hospital officially adopted by the House of Delegates of the American Medical Association in 1928 and revised in 1948 *Approval,* on the other hand, is a designation extended by the Council on Medical Education and Hospitals to certain registered hospitals which meet the requirements for internship, residency or fellowship training, approval is also extended by the American College of Surgeons to those hospitals which unconditionally meet its minimum requirements for general standardization

KEY TO SYMBOLS AND ABBREVIATIONS

- ★ Approved by the Council on Medical Education and Hospitals for the training of interns Reference should be made to the list of Approved Internships published in The Journal, April 15
- + Approved by the Council on Medical Education and Hospitals for the training of resident physicians Reference should be made to the list of Approved Residencies and Fellowships published in The Journal, April 15
- ▲ Approved by American College of Surgeons as meeting unconditionally its minimum requirements for general standardization
- ◇ School of nursing accredited by state board of nurse examiners
- ○ Affiliated for nurse training on state accredited basis
- † Figures for "average census" and "admissions" are exclusive of newborn infants

The column headed "Type of Service" indicates the general categories of patients treated

Card	Cardiac	ENT	Eye, ear, nose and throat	Iso	Isolation	N&M	Nervous and mental
Chil	Children	Gen	General	Mat	Maternity	Orth	Orthopedic
Chr	Chronic	Incur	Incurable	MatCh	Maternity and children	PhyMed	Physical Medicine
Conv	Convalescent and rest	Indus	Industrial	MeDe	Mentally deficient	SkCa	Skin and cancer
Drug	Drug and alcoholic	Inst	Institutional	Ment	Mental	TB	Tuberculosis
Epil	Epileptic					Ven	Venereal

The column headed "Control" indicates control, or auspices under which the institution is conducted

GOVERNMENTAL

Fed	Federal
IA	Indian Affairs
Army	United States Army
USAF	United States Air Force
Navy	United States Navy
USPHS	United States Public Health Service
Vet	Veterans Administration

State
City
County
City County
CyCo

NONPROFIT ORGANIZATIONS

Church	
NPAssn	Nonprofit Association

PROPRIETARY

Indiv	Individual
Part	Partnership
Corp	Corporation (unrestricted as to profit)

Corrections were made in the list to the time of going to press Totals of the list, therefore, may vary from totals in Tables 1 and 2 which were necessarily compiled earlier

ALABAMA

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Albertville, 3,651—Marshall							
Sand Mountain Infirmary	Gen	Indiv	20	10	8	234	828
Alexander City, 6 640—Tallapoosa							
Russell Hospital	Gen	Corp	60	26	15	451	1,538
Altoona, 9[illegible]5—Etowah							
Klein Hospital	Gen	Indiv	27	22	3	49	810
Andalusia, 6,886—Covington							
Covington Memorial Hosp	Gen	Part	50	23	10	315	1,849
Hillcrest Infirmary	Gen	Corp	84	42	16	92	1,711
Anniston, 25 523—Calhoun							
Anniston Memorial Hosp ▲◇	Gen	City	105	72	24	1,304	4,934
Atmore, 3 200—Escambia							
Atmore General Hospital	Gen	Indiv	28	8	12	143	701
Auburn, 4,652—Lee							
John Hodges Drake Hospital	Gen	State	65	23	10	198	1,801
Battles Wharf, 50—Baldwin							
Bayview Infirmary	Gen	Indiv	21	9	6	110	818
Bellamy, 450—Sumter							
Bellamy Hospital	Gen	NPAssn	16	4	2	12	184
Bessemer, 22,826—Jefferson							
Bessemer General Hospital▲	Gen	Corp	72	38	16	581	2,384
Birmingham, 267,583—Jefferson							
Baptist Hospital+▲◇	Gen	Church	203	169	26	1,136	8,353
Carraway Methodist Hospital★+▲◇	Gen	Church	225	131	33	1,407	7,045
Children's Hospital+▲○	Chil	NPAssn	63	48			2,234
East End Memorial Hospital	Gen	Corp	76	32	20	420	2 527
Harris Clinic Hospital	Gen	Indiv	23	13	4	73	752
Highland General Hospital	Gen	Corp	30	15	15	91	368
Hill Crest Sanitarium	N & M	Indiv	50	41			928
Jefferson Hillman Hosp ★+▲◇	Gen	State	504	402	88	3,785	20,324
Jefferson Tuberculosis Sanat	TB	NPAssn	225	212		-	412
Mid South Medical Center	Ven	State	900	300			16,783
Miss Quinn's Nursing Home	Conv	Part	12	10			287
St Vincent's Hospital▲◇	Gen	Church	135	106	17	634	5,272
South Highlands Infirm ▲◇	Gen	Corp	145	117	31	1,178	5,187
Thigpen Cater Eye Hospital	Unit of Jefferson Hillman Hospital						
[illegible] Crippled Children's Clinic▲	Orth	NPAssn	50	37			204
Brewton, 3,523—Escambia							
Escambia County Hospital	Gen	CyCo	30	11	8	233	1,243
Butler, 670—Choctaw							
Barber Hospital	Gen	Part	30	10	6	225	1,531
Chickasaw, 1,500—Mobile							
Chickasaw Infirmary	Gen	Indiv	15	3	8	117	300

ALABAMA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Cullman, 5,074—Cullman							
Cullman Hospital	Gen	CyCo	60	39	15	1,145	8 393
Decatur, 16,604—Morgan							
Decatur General Hospital	Gen	CyCo	75	31	13	374	1,541
Hamil Clinic-Hospital	Gen	Part	30	7	8	110	576
Morgan County Tuberculosis Sanatorium	TB	County	100	151			283
Dothan, 17,194—Houston							
Frasier Ellis Hospital▲◇	Gen	NPAssn	57	45	9	101	1,372
Moody Hospital▲◇	Gen	Indiv	75	46	16	884	2,562
East Tallassee 3,000—Tallapoosa							
Community Hospital	Gen	NPAssn	50	21	14	303	1,779
Enterprise, 4,853—Coffee							
Gibson Hospital	Gen	NPAssn	68	28	7	261	2,329
Eufaula, 6,269—Barbour							
Salter Hospital	Gen	Indiv	54	28	9	228	1,808
Fairfield, 11,703—Jefferson							
Employees' Hospital of Tennessee Coal, Iron and Railroad Company★+▲	Gen	NPAssn	300	200	46	1,731	10,314
Fayette, 2,668—Fayette							
McNease and Robertson Hospital▲	Gen	Part	20	13	8	295	917
Florala, 2,999—Covington							
Lakeview Hospital	Gen	Indiv	30	7	5	82	207
Florence, 15,043—Lauderdale							
Eliza Coffee Memorial Hosp	Gen	CyCo	92	56	26	1,154	4,087
Gadsden, 36 975—Etowah							
Baptist Memorial Hospital	Gen	Church	75	48	14	781	3 403
Etowah County Tuberculosis Sanatorium	TB	StateCo	22	17			41
Holy Name of Jesus Hosp ★▲◇	Gen	Church	120	96	20	1,005	6,271
Greensboro, 2,034—Hale							
Greensboro Hospital	Gen	Indiv	22	No data supplied			
Greenville, 5 075—Butler							
Speir Hospital	Gen	Indiv	40	11	6	174	762
Stabler Infirmary	Gen	Corp	62	35	14	344	2,033
Grove Hill, 730—Clarke							
South Alabama Infirmary	Gen	Corp	30	15	10	173	876
Guntersville, 4,398—Marshall							
City Hospital	Gen	City	60	19	12	388	2 832
Haleyville, 2 427—Winston							
Blake-Manasco Hospital	Gen	Part	48	31	10	252	1,104
Haleyville Hospital	Gen	Indiv	44	25	8	112	1,358

Key to symbols and abbreviations is on this page, preceding the tabulation

ALABAMA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Hartford 1 494—Geneva							
Tippins Hospital	Gen	Part	20	6	6	172	735
Hartselle 2,854—Morgan							
Hartselle Hospital	Gen	Indiv	15	6	8	178	478
Huntsville 13 050—Madison							
Huntsville Hospital	Gen	NPAssn	86	52	16	740	3,515
Jasper 6 847—Walker							
People's Hospital	Gen	County	100	40	13	490	4,857
Walker County Hospital	Gen	Corp	55	40	12	295	2,216
Lafayette 2,138—Chambers							
Batson Memorial Sanatorium	TB	Counties	75	70			127
Wheeler Hospital	Gen	Indiv	32	28	7	130	1,236
Luverne 2 243—Crenshaw							
Marvin M Kendrick Memorial Hospital	Gen	Part	15	13	10	84	576
Mobile 78 720—Mobile							
Allen Memorial Home	Mat	Church	25	16	30	948	1 087
City Hospital★+▲○	Gen	CyCo	300	187	43	1 513	7 850
Mobile County Tuberculosis Sanatorium	TB	NPAssn	64	85			29
Mobile Infirmary▲○	Gen	NPAssn	185	159	47	2 037	8 447
Providence Hospital▲○	Gen	Church	119	102	22	902	6 046
Station Hospital	Gen	USAF	60	24	10		606
U S Marine Hospital▲	Gen	USPHS	145	50			2 118
Montgomery 78 084—Montgomery							
Fitts Hill Hospital	Gen	Indiv	30	18	8	242	1,267
Fraternal Hospital	Gen	Indiv	45	39	10	138	2 001
Hubbard Hospital	Gen	Indiv	40	20		1	1 059
Kilby Prison Hospital	Inst	State	60	30			840
Montgomery Tuberculosis Sanatorium	TB	NPAssn	105	94			180
Professional Center Hospital	Gen	Indiv	32	31	16	604	1,958
St Margaret's Hospital▲○	Gen	Church	166	122	25	909	6,255
Station Hospital▲	Gen	USAF	150	61	17	510	2,478
Veterans Admin. Hospital▲	Gen	Vet	285	208			3 442
Mount Vernon 810—Mobile							
Searcy Hospital	Ment	State	1 950	1,857			728
Opelika 8 487—Lee							
Opelika Hospital	Gen	CyCo	33	17	14	852	1,382
Pell City 900—St Clair							
Pell City Infirmary	Gen	Indiv	46	23	8	202	1,378
Phenix City 15,351—Russell							
Phenix City Memorial Hosp	Gen	City	77	41	13	429	2 786
Prattville 2 664—Autauga							
Prattville General Hospital	Gen	Part	25	15	5	139	1,611
Roanoke 4 168—Randolph							
Knight Sanatorium	Gen	Indiv	60	12	11	97	872
Russellville 3 510—Franklin							
Betty Wilson Hospital	Gen	Indiv	30	18	5	153	1,231
Franklin County Hospital	Gen	Part	36	22	6	175	1 940
Scottsboro 2 834—Jackson							
Hodges Hospital	Gen	Indiv	20	5	4	170	549
Tri Counties Tuberculosis Sanatorium	TB	Counties	22	22			47
Selma 19,834—Dallas							
Goldsby King Memorial Hospital▲	Gen	Indiv	65	39	7	53	1 423
Selma Baptist Hospital▲	Gen	Corp	76	60	12	455	4 015
Station Hospital	Gen	USAF	25	5			361
Vaughan Memorial Hospital▲	Gen	Part	41	29	8	162	1,826
Sheffield 7,933—Colbert							
Colbert County Hospital	Gen	CyCo	63	41	18	797	3,240
Sylacauga 6,263—Talladega							
Drummond Fraser Hospital▲	Gen	Corp	36	18	12	160	1,564
Sylacauga Hospital▲○	Gen	City	78	43	18	412	3,344
Talladega 9,298—Talladega							
Citizens Hospital▲	Gen	NPAssn	70	44	24	581	2,877
Troy 7 055—Pike							
Beard Memorial Hospital	Gen	Corp	47	31	9	181	1,894
Edge Hospital	Gen	Indiv	60	32	10	219	1,478
Tuscaloosa 27,493—Tuscaloosa							
Bryce Hospital	Ment	State	4 323	4,279			1,567
Druid City Hospital▲○	Gen	CyCo	175	132	30	1,708	8,873
Veterans Admin Hospital▲	Ment	Vet	1,010	848			2 129
Tuskegee 3,937—Macon							
Veterans Admin Hospital+▲○	Ment	Vet	2 205	2,162			3 530
Tuskegee Institute 375—Macon							
John Albion Andrew Memorial Hospital▲○	Gen	NPAssn	145	98	24	647	3 447
Wetumpka 3 089—Elmore							
Wetumpka General Hospital	Gen	Corp	40	18	7	109	772
Wilsonville 749—Shelby							
Shelby Clinic Hospital	Gen	Indiv	8	1	2	30	80
York, 1 783—Sumter							
Hill Hospital	*Gen*	*Indiv*	*30*	*13*	*4*	*95*	*1 002*
Related Institutions							
Birmingham, 267 583—Jefferson							
Alabama Boys Industrial School	Inst	State	26	5			300
Salvation Army Home and Hospital	Mat	Church	45	34	25	119	107
Montevallo 1 490—Shelby							
Alabama College Infirmary	Inst	State	36	5			1 585
Montgomery 78 084—Montgomery							
Pineview Manor	MeDe	Part	30	24	4		50
Talladega 9,298—Talladega							
Goodnow Hospital	Inst	Church	18	1	1		30
Tuscaloosa 27 493—Tuscaloosa							
Partlow State School	MeDe	State	1,215	1 133			191
University 2 000—Tuscaloosa							
University Hospital	Inst	State	37	8			

ARIZONA

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Ajo 1,100—Pima							
Phelps Dodge Hospital	Gen	NPAssn	45	11	8		972
Benson 962—Cochise							
Benson Hospital	Gen	Indiv	10		1	Estab	1949
Bisbee 5 853—Cochise							
Copper Queen Hospital	Gen	NPAssn	42	17	8	134	705
Chandler 1,239—Maricopa							
Station Hospital▲	Gen	USAF	50	23			1 256
Cottonwood 1 710—Yavapai							
Marcus J Lawrence Memorial Hospital▲	Gen	NPAssn	33	22	5	114	1 109
Douglas 8 623—Cochise							
Cochise County Hospital	Gen	County	52	45	7	61	651
Flagstaff 5 080—Coconino							
Flagstaff Hospital▲	Gen	NPAssn	30	18	9	294	1 723
Station Hospital	Gen	Army	25	5	4	45	396
Florence, 1 383—Pinal							
Pinal General Hospital	Gen	County	50	38	11	277	1 495
Fort Defiance 600—Apache							
Navajo Medical Center	GenTb	IA	250	185	14	292	2 153
Ganado 150—Apache							
Sage Memorial Hospital▲○	Gen	Church	150	83	15	205	1 084
Globe 6 141—Gila							
Gila County Hospital	Gen	County	50	46	8	283	1 016
Grand Canyon 595—Coconino							
Grand Canyon Hospital	Gen	Indiv	10	2	4	10	133
Jerome, 2,295—Yavapai							
United Verde Hospital	Gen	NPAssn	51	15	6	131	892
Keams Canyon 150—Navajo							
Hopi General Hospital	Gen	IA	38	31	5	100	990
Kingman 2 200—Mohave							
Mohave General Hospital	Gen	County	45	24	10	201	1 108
McNary 55—Apache							
McNary Hospital	Gen	NPAssn	8	4	2	127	414
Mesa 7,224—Maricopa							
South Side District Hospital	Gen	NPAssn	118	60	27	836	3,805
Miami 4 722—Gila							
Miami Inspiration Hospital▲	Gen	NPAssn	45	23	6	262	1 241
Morenci 1 600—Greenlee							
Morenci Hospital▲	Gen	NPAssn	54	30	8	600	1,889
Nogales 5 135—Santa Cruz							
St Joseph's Hospital	Gen	Church	28	24	10	260	760
Parker 200—Yuma							
Colorado River Indian Hosp	Gen	IA	42	11	5	78	603
Phoenix 65,414—Maricopa							
Arizona State Hospital	Ment	State	1,500	1 442			691
Convalescent Home for Crippled Children	*Orth*	*State*	*50*	*45*			*305*
Good Samaritan Hospital★▲○	Gen	Church	210	181	42	1 076	6 300
Maricopa County Hospital	GenTb	County	240	224			3 427
Phoenix Indian Hospital▲	Gen	IA	60	45	10	91	872
Phoenix Indian Sanatorium	TB	IA	80	81			101
St Joseph's Hospital★+▲○	Gen	Church	192	178	45	2 781	8,354
St Luke's Sanatorium	TB	Church	82	76			171
St Monica's Hospital★+▲○	Gen	NPAssn	201	138	30	1,272	7 058
Veterans Admin Hospital▲	Gen	Vet	144	141			2 088
Prescott 6 018—Yavapai							
Prescott Community Hosp ▲	Gen	NPAssn	42	22	12	278	1,319
Yavapai County Hospital	Gen	County	70	63	8	79	603
Ray 1 100—Pinal							
Kennecott Copper Corporation Hospital	Gen	NPAssn	20	15	6	109	799
Sacaton 815—Pinal							
Pima Indian Hospital	Gen	IA	42	20	7	194	1,478
Safford 2,206—Graham							
Morris-Squibb Hospital	Gen	NPAssn	37	7	10	169	626
San Carlos 100—Gila							
San Carlos Indian Hospital	Gen	IA	46	15	6	93	736
Tempe, 2,906—Maricopa							
Arizona State Tuberculosis Sanatorium	TB	State	90	87			95
Tempe Clinic-Hospital	Gen	Indiv	23	12	16	238	839
Tuba City 150—Coconino							
Western Navajo Hospital▲	Gen	IA	44	33	6	132	1 078
Tucson 36,818—Pima							
Barfield Sanatorium	TB	Indiv	24	16			117
Comstock Children's Hospital	TB	NPAssn	35	23			55
Pima County General Hosp ▲	GenTb	County	150	133	4	72	2 615
St Luke's in the Desert Sanitarium	TB	Church	32	23			57
St Mary's Hospital and Sanatorium★+▲○	GenTb	Church	221	180	36	1,579	7 417
San Xavier Hospital▲	Gen	IA	46	22	6	77	690
Southern Pacific Sanatorium and Hospital	TB	NPAssn	93	66			826
Station Hospital▲	Gen	USAF	100	60	12	144	1,812
Tucson Medical Center★+▲	Gen	NPAssn	210	106	35	1,211	5 701
Veterans Admin Hospital▲	TB	Vet	414	353			1 676
Whipple 400—Yavapai							
Veterans Admin Center▲	TB	Vet	365	321			1,318
Whiteriver 300—Navajo							
Fort Apache Agency Hospital	Gen	IA	34	17	4	42	776
Wickenburg 995—Maricopa							
Community Hospital	Gen	NPAssn	21	14	7	79	670
Winslow 4,577—Navajo							
Winslow Indian Sanatorium and Hospital▲	Gen	IA	30	35	5	149	951
Yuma 5,325—Yuma							
Fort Yuma Indian Hospital▲	Gen	IA	25	9	8	41	[illegible]
Yuma County General Hosp	Gen	County	93	57	25	720	[illegible]

Key to symbols and abbreviations is on page 38

ARIZONA—Continued

Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Casa Grande, 1,545—Pinal							
Norman Hospital	Gen	Part	16		8	Estab	1949
Holbrook, 1,184—Navajo							
Holbrook Municipal Hospital	Gen	City	18	4	5	103	412
Phoenix, 65,414—Maricopa							
Casitas del Sol Sanatorium	TB	Indiv	13	11			24
El Sereno Lodge Sanitarium	N&M	Part	13	7			172
Prescott, 6,018—Yavapai							
Pines Sanatorium	TB	Indiv	10	3			14
Tombstone, 822—Cochise							
Tombstone General Hospital	Gen	City	20		3	Estab	1949
Tucson, 36,818—Pima							
Arizona State Elks Hospital	TB	NPAssn	96	18			36

ARKANSAS

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Alexander, 134—Pulaski							
Thomas C McRae Memorial Sanatorium	TB	State	106	No data supplied			
Arkadelphia, 6,264—Clark							
Reid Barnett Hospital	Gen	Part	15	7	6	91	501
Batesville, 5,267—Independence							
Allen Hospital	Gen	Part	34	21	12	502	1,966
Craig Hospital	Gen	Indiv	12	8	6	158	714
Dr Gray's Hospital	Gen	Indiv	56	20	8	117	1,492
Beebe, 1,189—White							
Sloan Hospital	Gen	Indiv	12	6	6	98	395
Benton, 7,502—Saline							
State Hospital	Unit of State Hospital, Little Rock						
Bentonville, 2,359—Benton							
Bates Memorial Hospital	Gen	City	40	16	12	382	1,256
Blytheville, 10,652—Mississippi							
Blytheville Hospital	Gen	Indiv	35	20	6	150	1,800
Walls Hospital	Gen	Indiv	30	25	12		
Camden, 8,975—Ouachita							
Camden Hospital	Gen	NPAssn	40	29	8	396	2,327
Charleston, 958—Franklin							
Bollinger Hospital	Gen	Indiv	12	8	4	65	160
Clarksville, 3,118—Johnson							
St Hildegard's Municipal Hospital	Gen	Church	25	14	10	291	1,019
Conway, 5,782—Faulkner							
Conway Memorial Hospital	Gen	NPAssn	30	17	10	290	1,271
Crossett, 4,891—Ashley							
Crossett Health Center	Gen	NPAssn	30	21	11	238	1,420
De Queen, 3,055—Sevier							
De Queen General Hospital	Gen	NPAssn	30	15	8	273	1,476
Dermott, 0—Chicot							
St Mary's Hospital	Gen	Church	30	2	8	274	1,600
Dumas, 2,2—Desha							
Dumas Hospital	Gen	NPAssn	26	12	10	160	873
El Dorado, 15,858—Union							
Fincher Clinic and Hospital	Gen	Indiv	30	10	0	118	720
Warner Brown Hospital▲○	Gen	Church	75	56	18	630	3,726
Fayetteville, 8,212—Washington							
Fayetteville City Hospital▲	Gen	City	60	45	20	922	3,722
Veterans Admin Hospital▲	Gen	Vet	301	218			3,584
Forrest City, 5,699—St Francis							
Roy Hospital	Gen	Part	40	15	10	75	850
Fort Smith, 36,584—Sebastian							
Arkansas Tuberculosis Sanatorium	Unit of Arkansas Tuberculosis Sanatorium, State Sanatorium, Ark						
St Edward's Mercy Hosp▲○	Gen	Church	145	114	36	1,273	5,702
Sparks' Memorial Hospital▲○	Gen	NPAssn	96	69	18	427	3,694
Harrisburg, 1,192—Poinsett							
Verser Clinic Hospital	Gen	Part	25		0	Estab	1949
Haskell, 171—Saline							
State Hosp, Benton Division	Unit of State Hospital, Little Rock						
Heber Springs, 1,656—Cleburne							
Estelle Hospital	Gen	Part	16	8	6	151	581
Helena, 8,546—Phillips							
Helena Hospital▲	Gen	NPAssn	71	49	15	438	2,077
Hope, 7,475—Hempstead							
Branch General Hospital	Gen	Indiv	20	10	6	37	489
Josephine Hospital	Gen	Indiv	26	10	5	170	650
Julia Chester Hospital	Gen	NPAssn	30	15	9	100	727
Hot Springs National Park, 21,370—Garland							
Alamo Hospital	Gen	Indiv	16	4	5	22	120
Army and Navy General Hospital▲	Gen	Army	410	370	6	260	4,680
Leo N Levi Memorial Hospital+▲○	Gen	NPAssn	112	85	13	360	1,837
Methodist Hospital	Gen	Church	59	45	12	265	1,570
St Joseph's Infirmary▲○	Gen	Church	158	115	30	380	4,067
U S Public Health Service Medical Center	Ven	USPHS	900	200	4	4	14,063
Jacksonville, 500—Pulaski							
Gray Barker Hospital	Gen	Part	8		2	Estab	1949
Jonesboro, 11,729—Craighead							
St. Bernard's Hospital▲○	Gen	Church	100	90	16	1,181	5,333
Lake Village, 2,015—Chicot							
Lake Village Infirmary	Gen	Part	40	18	8	222	1,448
Lewisville, 1,314—Lafayette							
La Fayette County Memorial Hospital	Gen	County	29		6	Estab	1949

ARKANSAS—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Little Rock, 88,039—Pulaski							
Arkansas Baptist Hosp ★+▲○	Gen	Church	209	235	40	1,407	10,800
Arkansas Children's Home and Hospital+▲	Chil	NPAssn	75	68	6		1,179
Granite Mountain Hospital	Gen	Indiv	20	2	2	12	110
Missouri Pacific Hospital▲	Indus	NPAssn	125	76			3,301
Pulaski County Hospital	ChrTb	County	215	190			204
St Vincent Infirmary+▲○	Gen	Church	210	180	50	1,616	9,361
State Hospital	Ment	State	4,800	4,835			2,039
Trinity Hospital▲	Gen	Part	40	27	10	99	1,185
United Friends of America Hospital	Gen	NPAssn	25	No data supplied			
University Hospital★+▲	Gen	State	200	151	31	1,487	4,670
Magnolia, 4,326—Columbia							
City Hospital	Gen	City	44	30	12	395	1,034
Monticello, 3,650—Drew							
Mack Wilson Hospital	Gen	Part	29	13	7	248	655
Morrilton, 4,608—Conway							
St Anthony's Hospital▲	Gen	Church	31	27	9	302	1,472
Newport, 4,321—Jackson							
Dr Gray's Hospital	Gen	Indiv	35	10	5	102	671
Harris Hospital and Clinic	Gen	Part	22	13	9	374	1,303
Newport Hospital	Gen	Part	35	15	12	200	1,822
North Little Rock, 21,137—Pulaski							
Veterans Admin Hospital+▲○	Ment	Vet	2,095	1,965			3,168
Paragould, 7,079—Greene							
Community Methodist Hosp	Gen	NPAssn	75		12	Estab	1949
Pine Bluff, 21,290—Jefferson							
Davis Hospital▲	Gen	City	125	80	28	1,000	5,082
Prescott, 3,177—Nevada							
Cora Donnell Hospital	Gen	Indiv	25	11	6	166	949
Russellville, 5,927—Pope							
St Mary's Hospital	Gen	Indiv	48	35	8	400	2,035
Searcy, 3,670—White							
Hawkins Clinic Hospital	Gen	Indiv	26	11	7	133	801
Porter Rodgers Hospital	Gen	Indiv	65	58	18	495	3,940
Siloam Springs, 2,764—Benton							
City Hospital	Gen	City	22	15	8	220	988
State Sanatorium, 300—Logan							
Arkansas Tuberculosis Sanatorium▲	TB	State	1,182	1,140			1,925
Texarkana, 11,821—Miller							
St Louis Southwestern Hospital	Indus	NPAssn	150	47		2	2,609
St Michael's Hospital▲	Gen	Church	150	53	30	702	4,009
Warren, 2,516—Bradley							
Hunt Hospital	Gen	Indiv	26	7	6	122	803

Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Booneville, 2,324—Logan							
McConnell Hospital	Gen	Indiv	17	No data supplied			
Texarkana, 11,821—Miller							
Jamison Sanitarium	Gen	Indiv	20	7	7	88	317

CALIFORNIA

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Agnew, 300—Santa Clara							
Agnews State Hospital	Ment	State	3,532	3,498			4,648
Ahwahnee, 50—Madera							
Ahwahnee Sanatorium	TB	Counties	105	100			120
Alameda, 36,256—Alameda							
Alameda Hospital▲	Gen	NPAssn	97	71	22	1,178	5,499
Albany, 11,493—Alameda							
Albany Hospital	Gen	Corp	27	25	12	647	1,896
Alcatraz,—San Francisco							
U S Penitentiary Hosp▲	Inst	USPHS	20	12			224
Alhambra, 38,935—Los Angeles							
Alhambra Hospital▲	Gen	Corp	60	37	18	973	2,665
Antioch, 5,106—Contra Costa							
Antioch General Hospital	Gen	Corp	24	13	8	259	964
Arcata, 1,855—Humboldt							
Trinity Hospital	Gen	Church	44	27	7	233	1,494
Arlington, 3,440—Riverside							
Riverside County Hospital	See Riverside						
Artesia, 3,891—Los Angeles							
Artesia Hospital	Gen	Indiv	25	16	14	789	1,531
Bloss Memorial Hospital	Unit of Merced General Hospital, Merced						
Auberry, 200—Fresno							
Wish I ah Sanatorium	TB	County	116	109			116
Auburn, 4,013—Placer							
DeWitt State Hospital	Ment	State	2,851	2,520			
Highland General Hospital	Gen	Part	49	23	6	348	2,140
Placer County Hospital	InstGen	County	200	90	5	105	746
Avalon, 1,637—Los Angeles							
Santa Catalina Hospital	Gen	Indiv	9	8	3	83	207
Bakersfield, 29,252—Kern							
Bakersfield Hospital	Gen	Indiv	30	25			1,499
Kern General Hospital+	Gen	County	640	586	99	2,316	10,723
Mercy Hospital▲	Gen	Church	99	80	30	1,400	4,887
San Joaquin Hospital	Gen	Corp	49	29		4	1,381
Banning, 3,874—Riverside							
Southern Sierras Sanatorium	TB	Indiv	25	12			22
Bell, 11,264—Los Angeles							
Bell Mission Hospital	Gen	Corp	27	20	11	449	1,335
Belmont, 1,220—San Mateo							
Alexander Sanitarium	N & M	Corp	85	70			594
California Sanatorium	TB	Corp	95	83			150
Twin Pines Sanitarium	N & M	Corp	65	47			506

Key to symbols and abbreviations is on page 38

CALIFORNIA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Berkeley 85,547—Alameda							
Alta Bates Hospital▲	Gen	NPAssn	112	90	40	2 073	6 3[illegible]2
Ernest V Cowell Memorial Hospital▲	Inst	State	176	45			2,026
Herrick Memorial Hosp *+▲	Gen	NPAssn	190	117	40	1 395	8 035
Brawley 11 718—Imperial							
Brawley Community Hospital	Gen	Indiv	25	17	10	514	1 410
Burbank 34 337—Los Angeles							
St Joseph s Hospital▲	Gen	Church	137	112	35	1 650	6 049
Camarillo 300—Ventura							
Camarillo State Hospital	Ment	State	5,315	4 825			2 805
Camp Stoneman —Contra Costa							
Station Hospital▲	Gen	Army	974	90	12	2[illegible]0	4 173
Carmel 2,837—Monterey							
Peninsula Community Hosp ▲	Gen	NPAssn	53	39	13	55[illegible]	2 212
Chula Vista 5 138—San Diego							
Chula Vista Hospital	Gen	Indiv	52	27	10	3 8	1,904
Clovis 1 626—Fresno							
Clovis Sanitarium	Gen	Indiv	15	10	4	107	590
Coalinga 5 026—Fresno							
Coalinga District Hospital	Gen	NPAssn	40	22	15	253	1,550
Colfax 794—Placer							
Colfax Hospital for the Tuberculous	TB	Indiv	34	21			30
Compton 16 198—Los Angeles							
Compton Sanitarium+▲○	N&M	Corp	124	89			441
Las Campanas Hospital	Gen	Corp	43	31	16	926	2 307
Women s and Children s Hospital	Gen	Indiv	17	15	7	164	1,910
Concord 1,373—Contra Costa							
Concord Community Hosp	Gen	Corp	34	24	8	252	1 539
Corcoran 2 092—Kings							
Corcoran Municipal Hospital	Gen	City	22		6	Estab	1949
Corona 8 764—Riverside							
Corona Hospital	Gen	Indiv	31	9	9	314	884
Coronado 6 932—San Diego							
Coronado Hospital	Gen	NPAssn	30	18	8	237	1 101
Covina 3 049—Los Angeles							
Covina Inter Community Hospital	Gen	NPAssn	60	46	13	5[illegible]2	2 549
Crescent City 1 363—Del Norte							
Seaside Hospital	Gen	County	29	34	8	275	1 091
Culver City 8 9 6—Los Angeles							
Community Hospital	Gen	Indiv	11	6			418
Culver City Hospital	Gen	Corp	52	37	14	755	2 550
Delano 4,573—Kern							
Delano Hospital	Gen	Indiv	23	14	7	239	1 165
Dinuba 3 790—Tulare							
Alta District Hospital	Gen	Indiv	19	No data supplied			
Dos Palos 978—Merced							
Dos Palos Hospital	Gen	Part	15	7	5	131	555
Downey 15 000—Los Angeles							
Downey Community Hosp	Gen	Corp	50	25	10	550	1 794
Duarte 2,000—Los Angeles							
Los Angeles Sanatorium+▲	TB	NPAssn	293	2[illegible]			168
El Centro, 10 017—Imperial							
Imperial County Charity Hospital	Gen	County	94	63	5	150	1 604
Eldridge 16—Sonoma							
Sonoma State Home	MeDe	State	2[illegible]70	18[illegible]			2 115
El Monte 4 740—Los Angeles							
Ruth Home	VenMat	NPAssn	72	21	10	20	92
El Toro 200—Orange							
U S Marine Corps Air Station Dispensary	Gen	Navy	38	4			1 062
Escalon 785—San Joaquin							
Pioneer Memorial Hospital	Gen	Indiv	15	7	3	66	32[illegible]
Eureka 17 055—Humboldt							
General Hospital	Gen	NPAssn	58	56	8	306	2,517
Humboldt County Community Hospital	Gen	County	[illegible]15	160	6	58	1,228
Humboldt County Sanitarium	TB	County	65	37			100
St Joseph Hospital	Gen	Church	[illegible]	51	20	603	[illegible] 017
Exeter 4,270—Tulare							
Memorial Hospital	Gen	NPAssn	45	21	8	232	1 [illegible]53
Fairfield 1,312—Solano							
Solano County Hospital	InstGen	County	120	10	6	140	940
Station Hospital▲	Gen	USAF	160	45			3,242
Fontana 7,200—San Bernardino							
Kaiser Fontana Hospital	Gen	NPAssn	56	[illegible]	9	240	1 747
Fort Bragg 8 235—Mendocino							
Redwood Coast Hospital▲	Gen	Corp	27	15	8	155	748
Fort Ord —Monterey							
Station Hospital▲	Gen	Army	39	201	26	688	6 450
Fowler 1 531—Fresno							
Fowler Municipal Hospital	Gen	City	12	7	5	194	513
French Camp 600—San Joaquin							
San Joaquin General Hospital*+▲○	Gen	County	640	592	28	1 907	8,[illegible]28
Fresno 60 685—Fresno							
Fresno Community Hospital▲	Gen	NPAssn	155	118	24	1 6[illegible]	7 628
General Hospital of Fresno County*+▲○	Gen	County	602	537	21	1 349	9 [illegible]
St Agnes Hospital▲	Gen	Church	97	73	24	1 488	4 743
Fullerton 10 442—Orange							
Fullerton Hospital▲	Gen	Church	45	[illegible]	11	690	2,[illegible]65
Garden Grove 2,500—Orange							
Garden Grove Sanitarium	N&M	Corp	160	95			500
Gilroy 3 615—Santa Clara							
Wheeler Hospital	Gen	NPAssn	[illegible]	15	10	2[illegible]2	1 123
Glendale 82,58[illegible]—Los Angeles							
Behrens Memorial Hospital	Gen	NPAssn	77	53	19	5[illegible]	3,[illegible]04

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Glendale Sanitarium and Hospital*+▲○	Gen	Church	225	1[illegible]2	40	1 494	7,223
Physicians and Surgeons Hospital▲	Gen	NPAssn	110	92	35	1 [illegible]	5,[illegible]
Grass Valley 5 701—Nevada							
Community Hospital	Gen	Indiv	19	1[illegible]	6	15[illegible]	[illegible]
W C Jones Memorial Hosp	Gen	Indiv	18	9	3	[illegible]4	451
Hamilton Field —Marin							
Station Hospital▲	Gen	USAF	172	75	12	251	2 [illegible]
Hanford 8,234—Kings							
General Hospital of Kings County	Gen	County	225	150	1[illegible]	40[illegible]	[illegible]
Hanford Sanitarium	Gen	Corp	30	27	8	[illegible]	1 105
Sacred Heart Hospital	Gen	Church	30	17	9	2[illegible]	1,328
Hawthorne 8,263—Los Angeles							
Hawthorne Hospital	Gen	Corp	43	35	10	680	2,450
Hayward 6 736—Alameda							
Hayward Hospital	Gen	Indiv	30	No data supplied			
Healdsburg 2,507—Sonoma							
Healdsburg General Hospital	Gen	Corp	25	12	6	206	[illegible]
Herlong —Lassen							
Station Hospital	Gen	Army	25	7	6	121	[illegible]6
Hollister 3,881—San Benito							
Hazel Hawkins Memorial Hospital	Gen	NPAssn	18	17	6	2[illegible]4	1,2[illegible]4
San Benito County Hosp	Gen	County	10	4	[illegible]	24	1[illegible]
Holtville 2 785—Imperial							
Imperial Valley Tuberculosis Sanatorium	TB	County	121	[illegible]			14
Hondo 3 150—Los Angeles							
Rancho Los Amigos	Ment	County	2 611	2[illegible]11			2,8[illegible]
Hoopa 140—Humboldt							
Hoopa Valley Indian Hosp	Gen	IA	29	9	5	40	415
Huntington Park 28 648—Los Angeles							
Mission Hospital▲	Gen	Corp	40	30	20	[illegible]	2 1[illegible]
Imola 20—Napa							
Napa State Hospital+	Ment	State	3,2[illegible]	3 [illegible]			1,517
Indio 2,296—Riverside							
Casita Hospital	Gen	Indiv	21	13	6	2[illegible]2	1 021
Coachella Valley Hospital	Gen	Corp	30	21	6	270	1 461
Inglewood 30,114—Los Angeles							
Centinela Hospital▲	Gen	NPAssn	62	57	22	1,[illegible]20	4 [illegible]8
St Erne Sanitarium	N&M	Indiv	200	195			17[illegible]
Stork Nest Women s Hospital	Mat	Part	20	10	15	4[illegible]	4[illegible]8
Keene 164—Kern							
Stony Brook Retreat	TB	County	170	148			141
King City 1 768—Monterey							
King City Hospital	Gen	Corp	22	15	4	1[illegible]0	[illegible]
Kingsburg 1 504—Fresno							
Kingsburg Sanitarium	Gen	Indiv	21	12	4	14	[illegible]1
La Crescenta 3 000—Los Angeles							
Hillcrest Sanatorium	Unit of Olive View Sanatorium Olive View						
La Jolla —San Diego							
Scripps Memorial Hospital▲	Gen	NPAssn	56	4[illegible]	9	[illegible]	[illegible] 441
Scripps Metabolic Clinic Hospital	Metab	NPAssn	35	29			1 018
Lakeport 1 490—Lake							
Lakeside Hospital	Gen	Part	37	[illegible]	6	1[illegible]	1 220
La Mesa 6 486—San Diego							
La Mesa Community Hosp	Gen	NPAssn	34	[illegible]	8	41[illegible]	1 577
La Vina 35—Los Angeles							
La Vina Sanatorium	TB	NPAssn	50	43			[illegible]5
Lindsay 4 397—Tulare							
Lindsay Municipal Hosp	Gen	Corp	29	No data supplied			
Livermore 2 885—Alameda							
Arroyo-Del Valle Sanatorium	See Oakland						
Livermore Sanitarium+	N&M	Corp	120	100			[illegible]
St Paul s Hospital	Gen	Indiv	[illegible]	1[illegible]	6	2[illegible]	1 148
Veterans Admin Hospital▲	TB	Vet	445	415			[illegible]15
Lodi 11 079—San Joaquin							
Buchanan Hospital	Gen	Indiv	[illegible]4	20	9	42[illegible]	1 414
Mason Hospital	Gen	Part	25	13	6	2[illegible]0	[illegible]
Loma Linda 2,500—San Bernardino							
Loma Linda Sanitarium and Hospital*+▲○	Gen	Church	135	117	29	[illegible]	4,59[illegible]
Lompoc 3,379—Santa Barbara							
Lompoc Hospital	Gen	NPAssn	44	19	14	1[illegible]2	[illegible]4
Long Beach 164,271—Los Angeles							
Bixby Knolls Hospital	Mat	Corp	22	14	22	[illegible]7	[illegible]
Harriman Jones Clinic and Hospital▲	Gen	Part	48	[illegible]	16	3[illegible]4	1 907
Long Beach Community Hospital▲	Gen	NPAssn	150	114	30	1 4[illegible]	[illegible]
Long Beach General Hospital	TB	County	200	14[illegible]			291
St Mary s Long Beach Hospital▲	Gen	Church	100	[illegible]	[illegible]	1 8[illegible]	[illegible] 827
Seaside Memorial Hosp *+▲	Gen	NPAssn	[illegible]0	2[illegible]	[illegible]	1 [illegible]	1 [illegible]0
U S Naval Hospital*+▲	Gen	Navy	1,[illegible]	1 0[illegible]	51	2 4[illegible]	1 [illegible]
Los Angeles 1 504 277—Los Angeles							
Alvarado Hospital	Gen	NPAssn	2[illegible]	20			1,2[illegible]
Barlow Sanatorium+▲○	TB	NPAssn	104	9[illegible]			10
California Babies and Children s Hospital+	Chil	NPAssn	30	5			40
California Hospital*+▲○	Gen	Church	[illegible]17	[illegible]0	45	2,8[illegible]	11 [illegible]
Cedars of Lebanon Hosp *+▲	Gen	NPAssn	310	2[illegible]1	[illegible]	2 [illegible]	11 4[illegible]
Childrens Hospital*+▲○	Chil	NPAssn	2[illegible]	1[illegible]			[illegible]
Eye and Ear Hospital	ENT	Corp	21	12			2 [illegible]
French Hospital▲	Gen	NPAssn	[illegible]6	[illegible]	1[illegible]	[illegible]21	[illegible]
Hollywood Leland Hospital	Gen	Corp	[illegible]1	19			1 1[illegible]
Hospital of the Good Samaritan*+▲○	Gen	Church	400	2[illegible]2	[illegible]	1 [illegible]	1[illegible] 17[illegible]
Hygeia Sanatorium	Alcoh	Indiv	11	[illegible]			2[illegible]
Lincoln Hospital	Gen	NPAssn	[illegible]	2[illegible]	11	[illegible]	1[illegible]

Key to symbols and abbreviations is on page 38

CALIFORNIA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Los Angeles County Hospital (Medical Unit)★+▲○	Gen	County	3,704	2,779	217	6,681	64,952
Los Angeles County Jail Hospital	Inst	County	71	57			2,007
Los Angeles County Psychopathic Hospital	Unit of Los Angeles County Hospital						
Los Angeles Neurological Institute	N & M	Corp	42	28			490
Los Angeles Sanitarium	ChrConv	Indiv	38	25			250
Methodist Hospital of Southern California▲○	Gen	Church	206	189	48	2,024	10,156
Midway Hospital	Gen	Corp	25	28			2,404
Orthopaedic Hospital+▲○	Orth	NPAssn	75	73			2,375
Pahl Hospital	Gen	Indiv	15	3	3	65	218
Presbyterian Hospital Olmsted Memorial★+▲○	Gen	Church	300	232	65	2,249	11,481
Queen of Angels Hosp ★+▲○	Gen	Church	502	448	113	4,512	18,972
Rose Netta Hospital	Gen	Indiv	10	2	4	52	92
St Vincent's Hospital★+▲○	Gen	Church	238	184	50	1,802	9,083
Santa Fe Coast Lines Hospital★+▲	Indus	NPAssn	196	149			4,237
Veterans Admin Center★+▲	GenMent	Vet	3,558	3,258			10,954
White Memorial Hosp ★+▲○	Gen	Church	207	178	28	1,534	9,216
Los Banos, 2,214—Merced							
City Clinic and Emergency Hospital	Gen	Church	14	8	3	138	565
Lynwood 10,982—Los Angeles							
St Francis Hospital▲	Gen	Church	160	163	45	2,776	9,870
Madera 6,457—Madera							
Dearborn Hospital	Gen	Corp	20	21	4	407	1,758
Madera County Hospital	GenTb	County	135	83	8	227	1,403
Madera Sanitarium	Gen	Indiv	23	11	6	263	1,143
Manor,—Marin							
Arequipa Sanatorium	TB	NPAssn	56	51			84
March Field —Riverside							
Station Hospital▲	Gen	USAF	100	75	20	360	2,162
Mare Island —Solano							
U S Naval Hospital★▲	Gen	Navy	700	533	28	565	6,591
Martinez 7,381—Contra Costa							
Contra Costa County Hosp	Gen	County	307	228	10	617	4,234
Martinez Community Hosp	Gen	Corp	48	26	8	353	1,700
Marysville, 6,646—Yuba							
Rideout Memorial Hospital	Gen	Indiv	55	42	11	834	2,875
Yuba County Hospital	Gen	County	90	91	11	176	1,554
McCloud, 2,000—Siskiyou							
McCloud Hospital	Gen	NPAssn	25	12	6	124	619
Merced, 10,135—Merced							
Mater Misericordiae Hosp	Gen	Church	45		16	Estab	1949
Merced General Hospital	GenTb	County	245	215	16	700	4,418
Modesto, 16,379—Stanislaus							
McPheeters Hospital	Gen	Indiv	30	32	7	395	2,004
Modesto State Hospital	Ment	State	2,828	2,750			701
Robertson Hospital	Gen	Corp	33	30	11	696	1,826
Stanislaus County Hospital	GenChr	County	329	226	18	629	4,565
Moffett Field —Santa Clara							
U S Naval Air Station Dispensary	Gen	Navy	35	7			887
Mojave, 750—Kern							
Mojave Hospital	Gen	Part	11		4		
Monrovia 12,807—Los Angeles							
Norumbega Sanatorium	TB	Indiv	20	14			21
Pottenger Sanatorium and Clinic▲	TB	Indiv	140	106			144
Montebello, 8,016—Los Angeles							
Beverly Community Hosp ▲	Gen	NPAssn	58	43	18	1,089	3,302
Monterey, 10,084—Monterey							
Monterey Hospital	Gen	Corp	55	31	13	294	1,740
Monterey Park 8,531—Los Angeles							
Garfield Hospital▲	Gen	Corp	40	37	12	627	2,272
Murphys 600—Calaveras							
Bret Harte Sanatorium+▲	TB	Counties	220	205			355
Napa, 7,740—Napa							
Parks Victory Memorial Hospital▲	Gen	NPAssn	58	32	10	501	2,365
National City, 10,344—San Diego							
Paradise Valley Sanitarium and Hospital▲○	Gen	Church	113	99	22	575	2,704
Nevada City, 2,445—Nevada							
Miners Hospital	Gen	NPAssn	20	13	4	132	591
Nevada County Hospital	InstGen	County	100	76	3	12	1,210
Newhall 1,590—Los Angeles							
Wildwood Sanatorium	Unit of Olive View Sanatorium, Olive View						
Newman, 1,214—Stanislaus							
West Side Hospital	Gen	Corp	16	13	4	212	676
Norwalk, 1,000—Los Angeles							
Norwalk State Hospital	Ment	State	2,537	2,434			1,163
Oakdale, 2,592—Stanislaus							
Oakdale Municipal Hospital	Gen	Indiv	32	15	8	359	1,445
Oakland 302,163—Alameda							
Alameda County Hospitals							
Arroyo Del Valle Sanat +▲	TB	County	209	248			266
Fairmont Hospital of Alameda County+▲	ChrTb	County	766	740			858
Highland Alameda County Hospital★+▲○	Gen	County	486	370	26	1,774	11,374
Children's Hospital of the East Bay+▲○	Chil	NPAssn	110	77			5,405
East Oakland Hospital▲	Gen	Corp	80	59	20	1,717	5,173
Peralta Hospital+▲	Gen	NPAssn	150	128	35	1,769	8,598

CALIFORNIA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Permanente Foundation Hospital★+▲○	Gen	NPAssn	315	210	57	1,895	9,282
Providence Hospital▲○	Gen	Church	218	172	43	2,089	9,232
Samuel Merritt Hospital+▲○	Gen	NPAssn	186	160	32	2,078	9,138
U S Naval Hospital★+▲	Gen	Navy	1,500	1,100	39	1,647	12,815
Veterans Admin Hospital▲	Gen	Vet	800	589			7,442
Oceanside, 4,651—San Diego							
Oceanside Hospital	Gen	NPAssn	29	18	7		1,002
U S Naval Hospital▲	Gen	Navy	235	128	14	440	1,489
Olive View,—Los Angeles							
Olive View Sanatorium+▲	TB	County	1,211	1,084			1,164
Orange, 7,901—Orange							
Orange County General Hospital★▲○	Gen	County	428	373	18	397	3,589
St Joseph Hospital▲	Gen	Church	160	113	39	1,135	4,744
Oxnard, 8,519—Ventura							
St John's Hospital▲	Gen	Church	45	28	15	619	2,301
Palo Alto, 16,774—Santa Clara							
Palo Alto Hospital▲	Gen	NPAssn	190	162	40	2,502	10,483
Veterans Admin Hospital+▲	Ment	Vet	1,464	1,431			777
Pasadena, 81,864—Los Angeles							
Alta Vista Hospital	Gen	Church	50	35	12	347	2,158
Collis P and Howard Huntington Memorial Hosp ★+▲○	Gen	NPAssn	238	222	43	1,745	10,305
Las Encinas Sanitarium	N & M	Corp	125	112			282
St Luke Hospital★▲	Gen	Church	160	125	60	2,389	7,549
Southern California Sanitarium for Nervous and General Diseases	See Las Encinas Sanitarium						
Woman's Hospital	Mat	NPAssn	19	8	19	391	457
Patton, 4,100—San Bernardino							
Patton State Hospital+	Ment	State	4,002	4,093			2,107
Pittsburg, 9,520—Contra Costa							
Pittsburg Community Hosp ▲	Gen	City	64	40	16	712	3,194
Placerville, 3,064—El Dorado							
El Dorado County Hospital	InstGen	County	76	52	12		130
Placerville Sanatorium	Gen	Part	26	15	4	215	1,072
Pomona, 23,539—Los Angeles							
Pomona Valley Community Hospital▲	Gen	NPAssn	82	63	18	823	3,705
Porterville, 6,270—Tulare							
New Porterville Hospital	Gen	Part	22	19	8	545	1,590
Portola, 2,000—Plumas							
Western Pacific Railroad Hospital	Gen	NPAssn	28	15	5	99	624
Quincy, 1,800—Plumas							
Plumas County Hospital	Gen	County	42	35	3	19	392
Red Bluff, 3,824—Tehama							
St Elizabeth's Mercy Hosp	Gen	Church	50	45	8	314	1,650
Redding, 8,109—Shasta							
Shasta County Hospital	GenTb	County	83	67	8	62	720
Redlands 14,324—San Bernardino							
Redlands Community Hosp ▲	Gen	NPAssn	73	48	20	519	2,944
Redwood City, 12,453—San Mateo							
Canyon Sanatorium	TB	County	71	61			73
Hassler Health Home	TB	CyCo	262	261			265
Reedley, 3,170—Fresno							
Reedley Hospital	Gen	NPAssn	30	13	7	397	1,545
Represa, 250—Sacramento							
Folsom Prison Hospital▲	Inst	State	120	No data supplied			
Richmond, 23,642—Contra Costa							
Richmond Hospital▲	Gen	Indiv	70	56	22	1,654	4,888
Ridgecrest, 150—Kern							
Ridgecrest Hospital	Gen	Indiv	42	27	10	234	1,832
Riverside, 34,696—Riverside							
Riverside Community Hosp ▲	Gen	NPAssn	136	87	42	1,211	5,922
Riverside County Hospital★▲	GenTb	County	320	280	14	332	3,776
Sherman Institute Hospital	Inst	IA	56	16			489
Rosemead, 5,500—Los Angeles							
Alhambra Sanatorium	N & M	Indiv	26	19			368
Ross, 1,751—Marin							
Ross General Hospital▲	Gen Tb	Corp	95	66	17	517	2,434
Sacramento, 105,958—Sacramento							
Mercy Hospital▲○	Gen	Church	155	139	35	2,147	6,614
Sacramento County Hosp ★▲○	Gen	County	375	383	25	1,010	10,623
Station Hospital▲	Gen	USAF	70	34	12	341	1,795
Sutter General Hospital▲	Gen	NPAssn	253	193			8,903
Sutter Maternity Hospital▲	Mat	NPAssn	72	59	89	3,331	4,382
Salinas, 11,586—Monterey							
El Sausal Sanitarium	Unit of Monterey County Hospital						
Monterey County Hosp +▲	GenTb	County	258	234	10	535	2,956
Park Lane Hospital	Gen	Corp	58	38	15	452	2,736
Salinas Valley Hospital	Gen	Indiv	25		7		
San Bernardino, 43,646—San Bernardino							
St Bernardine's Hospital▲	Gen	Church	125	93	34	1,299	5,832
San Bernardino County Charity Hospital★+▲○	Gen	County	543	325	17	688	5,470
San Diego, 203,341—San Diego							
Collier Park Hospital	Mat	Church	20	17	11	196	154
Family Hospital▲	Gen	Navy	48	13	30	575	1,043
Mercy Hospital★+▲○	Gen	Church	332	278	100	4,646	13,877
Quintard Hospital	Gen	NPAssn	91	64	30	1,076	4,065
San Diego County General Hospital★+▲○	GenTb	County	924	637	24	643	8,851
U S Naval Hospital★+▲	Gen	Navy	1,700	1,200	51	2,261	21,102
Vauclain Home	Unit of San Diego County General Hosp						
San Fernando, 9,094—Los Angeles							
San Fernando Hospital	Gen	Indiv	30	20	8	647	1,496
Veterans Admin Hospital▲	TB	Vet	365	344			337

Key to symbols and abbreviations is on page 38

CALIFORNIA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
San Francisco 634 536—San Francisco							
Children's Hospital★+▲○	Gen	NPAssn	250	197	60	2,300	8 071
Chinese Hospital	Gen	NPAssn	64	50	9	800	1 833
Doctors Hospital	Gen	Corp	60	24	2	2	1 011
Franklin Hospital★+▲○	Gen	NPAssn	250	211	16	302	7 716
French Hospital★+▲○	Gen	NPAssn	225	152	18	610	6,452
Greens Eye Hospital+▲	ENT	Part	35	16			778
Hahnemann Hospital▲	Gen	NPAssn	79	67			3 207
Laguna Honda Home	InstGen	CyCo	900	857			1 050
Langley Porter Clinic Hosp +	Ment	State	97	61			225
Letterman General Hosp ★+▲	Gen	Army	1 875	1 347	25	1 057	12 465
Mary's Help Hospital★+▲○	Gen	Church	186	137	58	1 704	6 835
Mount Zion Hospital★+▲○	Gen	NPAssn	163	131	30	944	5 679
Park Sanitarium	N & M	Corp	34	21			1 117
St Elizabeth's Infant Hosp	MatCh	Church	86	35	10	144	194
St Francis Hospital+▲○	Gen	NPAssn	300	223	49	1 394	11,581
St Joseph's Hospital★+▲○	Gen	Church	238	180	45	1,594	7,523
St Luke's Hospital★+▲○	Gen	Church	220	170	25	862	7,051
St Mary's Hospital★+▲○	Gen	Church	371	310	60	2 138	11 012
San Francisco Hospital★+▲○	Gen	CyCo	1 370	1 082	53	1,584	21 058
San Francisco Polyclinic	Gen	NPAssn	20	10			792
San Francisco Psychopathic Hospital	Unit of San Francisco Hospital						
Shriners Hospital for Crippled Children+▲○	Orth	NPAssn	60	58			219
Southern Pacific General Hospital★+▲	Indus	NPAssn	450	433			7 747
Stanford University Hospitals★+▲○	Gen	NPAssn	356	289	52	2,232	11,360
U S Marine Hospital★+▲	GenTb	USPHS	627	365			5,074
University of California Hospital★+▲○	Gen	State	286	214	30	933	8 141
Veterans Admin Hospital+▲	Gen	Vet	414	333			4,369
Sanger 4 017—Fresno							
Sanger Hospital	Gen	Corp	17	12	6	315	930
Sanitarium 500—Napa							
St Helena Sanitarium and Hospital▲○	Gen	Church	135	99	8	248	3 364
San Jose 68 457—Santa Clara							
Alum Rock Sanatorium	TB	NPAssn	67	56			274
O Conner Hospital▲○	Gen	Church	125	127	38	2 076	6 864
San Jose Hospital▲○	Gen	NPAssn	185	160	56	2,397	8 543
Santa Clara County Hospital★+▲○	GenTb	County	446	363	30	703	6 349
Santa Clara County Sanat +	Unit of Santa Clara County Hospital						
San Leandro 14 601—Alameda							
Fairmont Hospital of Alameda County	See Oakland						
San Luis Obispo 8,881—San Luis Obispo							
Casa Loma Sanatorium	Unit of San Luis Obispo General Hospital						
French Hospital	Gen	Indiv	38	24	7	65	1,334
Mountain View Hospital	Gen	Indiv	27	22	8	539	1 587
San Luis Obispo General Hospital	GenTb	County	82	47	12	175	1 693
San Mateo 19 403—San Mateo							
Community Hospital of San Mateo County+▲	Gen	County	170	134	13	246	3 007
Mills Memorial Hospital▲	Gen	Church	145	118	81	2 032	8,547
San Pedro —Los Angeles							
San Pedro Community Hosp	Gen	NPAssn	115	74	26	1 038	4 009
San Quentin 328—Marin							
Charles L Neumiller Hosp ▲	Inst	State	150	132			1,584
San Rafael 8 573—Marin							
Marin County Hospital	Chr	County	45	No data supplied			
San Rafael General Hospital	Gen	Indiv	50	43	13	637	3 259
Santa Barbara 34 958—Santa Barbara							
St. Francis Hospital★	Gen	Church	91	61	19	558	3 420
Santa Barbara Cottage Hospital★+▲○	Gen	NPAssn	210	148	28	861	6 057
Santa Barbara General Hospital★	Gen	County	805	255			2 238
Santa Cruz 16 896—Santa Cruz							
Santa Cruz County Hospital	Gen	County	165	142	8	78	1 792
Santa Cruz Hospital	Gen	Corp	51	42	15	878	3 004
Sisters Hospital	Gen	Church	28	21	7	352	1,522
Santa Maria 8,522—Santa Barbara							
Our Lady of Perpetual Help Hospital▲	Gen	Church	48	34	14	708	2 063
Santa Monica 53,500—Los Angeles							
St John's Hospital★+▲	Gen	Church	108	101	40	2,298	6 097
Santa Monica Hospital★▲○	Gen	Church	178	140	25	1,014	9 450
Santa Rosa 12 605—Sonoma							
Eliza Tanner Hospital	Gen	Part	20	14			1 130
Sonoma County Hospital▲○	GenTb	County	462	405	20	423	3 503
Scotia 2 900—Humboldt							
Scotia Hospital	Gen	NPAssn	40	31	5	390	1 670
Sebastopol 1,856—Sonoma							
Palm Drive Hospital	Gen	Part	30	17	10	212	1 091
Selma 3 667—Fresno							
Selma Sanitarium	Gen	Corp	35	29	12	349	3 155
Sonoma 1 158—Sonoma							
Sonoma Valley Hospital District	Gen	NPAssn	23	15	4	124	623
Sonora 2 257—Tuolumne							
Sonora Hospital	Gen	Indiv	20	14	5	112	714
Tuolumne County Hospital	InstGen	County	45	32	3	22	502
South Pasadena 14 356—Los Angeles							
Pasadena Sanitarium+	N & M	Indiv	75	58			625
South San Francisco 6 629—San Mateo							
South San Francisco Hosp ▲	Gen	Corp	36	17	8	90	812
Spadra 275—Los Angeles							
Pacific Colony+	MeDe	State	2 002	1 927			450
Springville 665—Tulare							
Tulare-Kings Counties Joint Tuberculosis Hospital+	TB	Counties	127	123			[illegible]
Stockton 54 714—San Joaquin							
Dameron Hospital	Gen	NPAssn	81	65	18	1 605	[illegible]
St Joseph's Hospital▲	Gen	Church	111	97	22	[illegible]	[illegible]
Stockton State Hospital▲	Ment	State	4 692	[illegible]			[illegible]
Susanville 1 575—Lassen							
Riverside Hospital	Gen	Part	18	12	4	161	[illegible]
Talmage 350—Mendocino							
Mendocino State Hospital▲	Ment	State	3 014	2 773			855
Tehachapi 1 264—Kern							
Tehachapi Valley Hospital	Gen	Part	16	13	7	81	[illegible]
Torrance 9 950—Los Angeles							
Harbor General Hospital★+▲	Gen	County	580	504	25	768	6 881
Jared Sidney Torrance Memorial Hospital▲	Gen	NPAssn	63	34	20	[illegible]	2 501
Tracy 4 056—San Joaquin							
Tracy Community Memorial Hospital	Gen	NPAssn	42	15	12	224	1 139
Trona 775—San Bernardino							
Trona Hospital	Gen	NPAssn	24	15	4	134	700
Tulare 8 259—Tulare							
East Tulare Hospital	Mat	Indiv	12	6	12	600	[illegible]
Tulare County General Hosp	Gen	County	103	77	15	572	3 516
Tulare Hospital	Gen	Indiv	24	14	2	11	1 560
Turlock 4 839—Stanislaus							
Emanuel Hospital	Gen	Church	56	35	14	594	3 136
Lillian Collins Hospital	Gen	Indiv	39	20	12	158	1 067
Ukiah 3 731—Mendocino							
Ukiah General Hospital	Gen	Part	20	12	5	326	1 006
Upland, 6,316—San Bernardino							
San Antonio Community Hospital▲	Gen	NPAssn	74	52	22	869	3 539
Vallejo 20 072—Solano							
Permanente Hospital	Gen	NPAssn	225	166	20	401	3 099
U S Naval Hospital	See Mare Island						
Vallejo General Hospital	Gen	Corp	60	47	15	1 446	
Van Nuys —Los Angeles							
Valley Hospital	Gen	Corp	50	39	12	500	2,519
Veterans Admin Hosp ★+▲	Gen	Vet	1 609	1,286			10 640
Ventura, 13,264—Ventura							
Bard Memorial Hospital	Unit of Ventura County Hospital						
Foster Memorial Hospital▲	Gen	NPAssn	54	44	12	563	2,510
Ventura County Hospital▲	GenTb	County	314	No data supplied			
Veterans Home, 1 866—Napa							
Veterans Home Hospital▲	Inst	State	265	225			1 152
Visalia 8,904—Tulare							
Visalia Municipal Hospital	Gen	City	46	32	15	720	[illegible]
Watsonville, 8,937—Santa Cruz							
Watsonville Hospital	Gen	Corp	65	45	18	625	2 704
Weimar 125—Placer							
Weimar Joint Sanatorium	TB	Counties	560	519			615
West Los Angeles —Los Angeles							
Veterans Admin Center	See Los Angeles						
Westwood 5 000—Lassen							
Westwood Hospital	Gen	Indiv	40	14	5	139	[illegible]
Willits 1 625—Mendocino							
Frank R. Howard Memorial Hospital	Gen	NPAssn	25	15	5	213	1 106
Woodlake, 1,146—Tulare							
Sequoia Hospital	Gen	Part	9	4	4	140	480
Woodland 6 637—Yolo							
Woodland Clinic Hospital▲	Gen	Part	74	59	12	571	2,970
Yolo General Hospital	Gen	County	80	50	8	294	1 918
Yosemite National Park 500—Mariposa							
Lewis Memorial Hospital	Gen	Indiv	13	6	3	46	529
Yreka 2 485—Siskiyou							
Siskiyou County General Hospital	Gen	County	120	102	14	[illegible]	1 861
Yuba City 4 968—Sutter							
Sutter County Hospital	Gen	County	60	55	4	82	[illegible]
Yuba City Community Hosp	Gen	Corp	18		6	Estab	[illegible]

Related Institutions

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Artesia 3 891—Los Angeles							
Pioneer Sanitarium	MeDe	Indiv	55	50			45
Baldwin Park 16 000—Los Angeles							
Sierra Lodge Sanitarium	N & M	Indiv	[illegible]	58			300
Belmont, 1,229—San Mateo							
Chas S Howard Foundation	Card	Corp	29	15			[illegible]
Chino 4,204—San Bernardino							
Hospital of the California Institution for Men▲	Inst	State	22	18			[illegible]
Chula Vista 5 138—San Diego							
Guest House	N & M	Corp	42	22			[illegible]
Vista Hill Sanitarium	N & M	Part	16	15			[illegible]
Claremont 3 057—Los Angeles							
Claremont Colleges Infirmary	Inst	NPAssn	24	1			[illegible]
Duarte 2 000—Los Angeles							
Santa Teresita Sanatorium	TB	Church	[illegible]	110			[illegible]
Eureka 17 055—Humboldt							
Humboldt County Isolation Hospital	Iso	County	16	5			[illegible]
Gardena 12 976—Los Angeles							
Alondra Nursing Home	Conv	Indiv	15			[illegible]	[illegible]
Bellevue Nursing Home	Conv	Indiv	2	1			[illegible]
La Crescenta 3 000—Los Angeles							
Kimball Sanitarium	N & M	Part	35	2			[illegible]

CALIFORNIA—Continued

Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Lakeport, 1,400—Lake							
Lake County General Hosp	InstGen	County	25	No data supplied			
Long Beach, 164,271—Los Angeles							
California Sanitarium	Conv	Indiv	50	45			600
Los Angeles, 1,504,277—Los Angeles							
Arcadia Sanitarium Hospital	Conv	Indiv	32	15			60
Booth Memorial Hospital	Mat	Church	15	12	8	177	233
Chase Sanitarium	Conv	Part	22	21			40
Florence Crittenton Home	Mat	NPAssn	44	26	6	65	76
Mont St John of God Sanit	Conv	Church	33	32			62
Resthaven	N & M	NPAssn	52	41			289
St Anne's Maternity Hosp ▲	Mat	Church	40	36	20	236	205
Santa Marta Hospital and Clinic	Mat	Church	12	6	12	191	190
Twentieth Century Sanitarium	N & M	Indiv	56	56			37
Monrovia, 12,807—Los Angeles							
Maryknoll Sanatorium	TB	Church	44	43			49
National City, 10,344—San Diego							
Hillcrest Manor Sanitarium	N & M	Indiv	50	48			40
Oakland, 302,163—Alameda							
Booth Memorial Hospital	Mat	Church	15	8	0	214	288
Pacoima,—Los Angeles							
Independent Order of Foresters Tuberculosis Sanitarium	TB	NPAssn	50	33			44
Rosemead, 5,500—Los Angeles							
Rosemead Lodge Sanitarium	N & M	Indiv	50	27			208
Ross 1,750—Marin							
Cedars Development School	MeDe	Corp	75	61			9
San Diego, 203,341—San Diego							
Children's Convalescent Hosp	Conv	NPAssn	45	[illegible]			71
Fraser Hall Hospital	Conv	Indiv	25	21			289
San Francisco, 634,536—San Francisco							
Garden Hospital	Chr	NPAssn	101	100			56
San Gabriel, 11,867—Los Angeles							
Mission Lodge Sanitarium	N & M	Part	68	68			16
Monterey Sanitarium	N & M	Part	61	44			189
San Marino Sanitarium	N & M	Part	75	67			150
San Mateo 19,405—San Mateo							
Children's Health Home	TB	NPAssn	28	10			17
Santa Monica, 53,500—Los Angeles							
Lounshire Convalescent Hospital and Rest Home	Unit of Santa Monica Hospital						
Sonora, 2,257—Tuolumne							
Columbia Way Hospital	Gen	Part	40	24	12	156	1,016
Stanford 750—Santa Clara							
Stanford Convalescent Home	Chil	NPAssn	80	67			108
Wilmar 8,000—Los Angeles							
Ingleside Lodge	N & M	NPAssn	52	43			161

COLORADO

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Akron, 1,417—Washington							
Washington County Public Hospital	Gen	County	15	9	5	95	633
Alamosa, 5,61 —Alamosa							
Alamosa Community Hosp	Gen	Church	50	32	21	499	3,196
Aspen 777—Pitkin							
Pitkin County Public Hosp	Gen	County	14	4	4	16	265
Boulder, 12,958—Boulder							
Boulder Colorado Sanitarium and Hospital▲○	Gen	Church	101	63	10	277	2,255
Community Hospital▲	Gen	NPAssn	50	30	12	496	2,268
County of Boulder General Hospital	Gen	County	44	30	4	35	578
Brush, 2,481—Morgan							
Eben Ezer Hospital	Gen	Church	40	21	12	300	1,515
Burlington 1,280—Kit Carson							
Kit Carson County Memorial Hospital	Gen	County	32	16	6	108	891
Camp Carson —El Paso							
Station Hospital	Gen	Army	100	64	10	360	2,220
Canon City, 6,690—Fremont							
Colorado Hospital	Gen	Indiv	25	16	4	41	635
St Thomas More Hospital	Gen	Church	42	23	6	175	1,291
Cheyenne Wells, 695—Cheyenne							
St Joseph Hospital	Gen	Church	30	12	6	82	685
Climax 500—Lake							
Climax Molybdenum Company Hospital	Indus	NPAssn	11	4			360
Collbran, 301—Mesa							
Plateau Valley Congregational Hospital	Gen	Church	13	6	4	60	230
Colorado Springs, 36,789—El Paso							
Colorado Springs Psychopathic Hospital	N & M	Part	150	143			370
Glockner Penrose Hosp ★+▲○	GenTb	Church	220	169	25	712	4,842
Memorial Hospital▲○	GenIso	City	89	74	21	489	3,401
St Francis Hospital and Sanatorium+▲	GenTb	Church	175	125	16	453	3,788
Union Printers Home and Tuberculosis Sanatorium	InstTb	NPAssn	455	108			160
Cortez, 1,778—Montezuma							
Southwest Memorial Hospital	Gen	NPAssn	35	20	13	333	1,914
Cripple Creek, 2,358—Teller							
Cripple Creek Hospital	Gen	NPAssn	25	4	6	29	242
Del Norte, 1,923—Rio Grande							
St Joseph's Hospital	Gen	Church	45	32	15	165	1,566

COLORADO—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Delta, 3,717—Delta							
Delta Memorial Hospital	Gen	NPAssn	16	10	3	124	594
Denver, 322,412—Denver							
Bethesda Sanatorium	TB	Church	67	17			20
Beth Israel Hospital▲	Gen	NPAssn	55	45	10	201	2,112
Childrens Hospital+▲○	Chil	NPAssn	210	149	15		7,675
Colorado General Hosp ★+▲○	Gen	State	270	218	22	779	5,187
Colorado Psychopathic Hospital+▲	Ment	State	78	87			931
Denver General Hospital★+▲○	GenTb	CyCo	495	380	30	665	9,035
Ex Patients' Tubercular Home	TB	NPAssn	50	41			26
Fitzsimons General Hospital★+▲	Gen	Army	2,500	1,769	25	982	12,76?
General Rose Memorial Hospital	Gen	NPAssn	242		40	Estab 1949	
Mercy Hospital★+▲○	Gen	Church	250	234	35	1,121	10,342
Mount Airy Sanitarium▲	N & M	Part	70	67			1,355
National Jewish Hospital+▲○	TB	NPAssn	255	233			277
Porter Sanitarium and Hospital★▲○	Gen	Church	130	123	25	914	5,128
Presbyterian Hospital★+▲○	Gen	Church	170	170	35	1,748	7,365
Robert W Speer Memorial Hospital for Children	Unit of Denver General Hospital						
St Anthony Hospital★+▲○	Gen	Church	235	187	40	1,660	9,044
St Joseph's Hospital★+▲○	Gen	Church	338	254	60	2,443	11,382
St Luke's Hospital★+▲○	Gen	Church	281	207	50	2,225	11,448
Station Hospital▲	Gen	USAF	250	128			4,060
Steele Memorial Hospital	Unit of Denver General Hospital						
University of Denver Hosp	Inst	NPAssn	25	9			436
Durango, 5,887—La Plata							
La Plata County Hospital	Gen	County	26	18	6	76	822
Mercy Hospital▲○	Gen	Church	62	50	12	378	3,950
Edgewater (Denver P O), 1,648—Jefferson							
Sands House	CancerConv	NPAssn	44	9			100
Englewood, 9,680—Arapahoe							
Federal Correctional Inst	Inst	USPHS	25	4			286
Swedish National Sanatorium	TB	NPAssn	72	63			89
Estes Park, 894—Larimer							
Estes Park Hospital	Gen	Indiv	9	1	3	12	104
Flagler 506—Kit Carson							
Flagler Hospital	Gen	Indiv	12	7	6	100	401
Florence, 2,632—Fremont							
St Joseph Hospital	Gen	Church	28	14	6	74	664
Fort Collins, 12,251—Larimer							
Larimer County Hospital▲	Gen	County	80	61	21	926	3,753
Fort Logan,—Arapahoe							
Veterans Admin Hospital+▲	Gen	Vet	326	291			3,499
Fort Lyon, 1,180—Bent							
Veterans Admin Hospital+▲	Ment	Vet	887	867			296
Fort Morgan, 4,884—Morgan							
Fort Morgan Hospital	Gen	Indiv	25	20	8	181	812
Fruita, 1,466—Mesa							
Fruita Community Hospital	Gen	NPAssn	12	7	5	84	396
Glenwood Springs, 2,253—Garfield							
Dr Porter's Hospital	Gen	Part	19	12	7	137	707
Glenwood Springs Hospital	Gen	NPAssn	35	11	5	69	651
Grand Junction, 12,479—Mesa							
St Mary's Hospital▲○	Gen	Church	77	70	15	649	3,302
Veterans Admin Hospital	Gen	Vet	152			Estab 1949	
Greeley, 15,995—Weld							
Weld County Public Hosp ▲	Gen	County	108	81	20	1,013	4,487
Hayden, 640—Routt							
Solandt Memorial Hospital	Gen	NPAssn	16	13	7	191	507
Ignacio, 555—La Plata							
Edward T Taylor Indian Hospital	Gen	IA	22	10	6	24	205
Julesburg, 1,619—Sedgwick							
Community Hospital	Gen	NPAssn	12	6	6	124	336
La Junta, 7,040—Otero							
Atchison, Topeka and Santa Fe Railroad Hospital▲	Indus	NPAssn	86	10			369
Mennonite Hospital and Sanitarium▲○	Gen	Church	108	79	22	709	3,139
Lakewood (Denver P O), 2,000—Jefferson							
Craig Colony	TB	NPAssn	42	37			27
Lamar, 4,445—Prowers							
Sacred Heart Hospital	Gen	Church	82	26	12	542	1,808
Leadville, 4,774—Lake							
St Vincent's Hospital	Gen	Church	40	16	10	230	975
Longmont, 7,406—Boulder							
Longmont Hospital and Clinic▲	Gen	Corp	40	24	10	274	1,355
St Vrain Hospital	Gen	NPAssn	25	16	7	74	616
Monte Vista, 3,208—Rio Grande							
Lutheran Community Hosp	Gen	Church	32	18	12	238	1,210
Montrose, 4,764—Montrose							
St Luke's Hospital	Gen	Indiv	24	15	10	203	849
Oak Creek, 1,769—Routt							
Oak Creek Hospital	Gen	Indiv	13	4	4	53	273
Ouray, 951—Ouray							
San Juan Miner's Hospital	Gen	NPAssn	16	4	7	28	153
Pueblo, 52,162—Pueblo							
Colorado State Hospital+▲○	Ment	State	5,237	4,939			1,107
Corwin Hospital★+▲○	Gen	Church	206	155	22	854	6,216
Parkview Episcopal Hosp ▲	Gen	NPAssn	100	69	22	505	2,849
St Mary Hospital▲○	Gen	Church	1 0	102	25	647	4,906
Woodcroft Hospital▲	N & M	Corp	102	88			495
Rocky Ford, 3,494—Otero							
Physicians Hospital	Gen	NPAssn	12	9	6	111	609

Key to symbols and abbreviations is on page 38

COLORADO—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Salida 4,969—Chaffee							
Denver and Rio Grande Western Hospital▲	Gen	NPAssn	65	64	8	194	2,621
Spivak 350—Jefferson							
Sanatorium of the Jewish Consumptives Relief Society▲	TB	NPAssn	250	179			113
Sterling 7 411—Logan							
Good Samaritan Hospital	Gen	Church	35	21	10	107	1 383
St Benedict Hospital	Gen	Church	32	25	14	313	1 798
Trinidad 13 223—Las Animas							
Mount San Rafael Hosp ▲○	Gen	Church	70	31	12	400	1 061
Walsenburg 5 855—Huerfano							
Lamme Hospital	Gen	Part	20	12	5	119	667
Wheat Ridge 3,500—Jefferson							
Lutheran Sanatorium▲	TB	NPAssn	110	94			83
Wray 2,061—Yuma							
Wray Community Hospital	Gen	Corp	17	5	8	206	706

Related Institutions

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Boulder 12 958—Boulder							
Mesa Vista Sanatorium	TB	Part	49	34			54
Colorado Springs 36 789—El Paso							
Cragmor Sanatorium	TB	NPAssn	125	50			85
Denver, 322 412—Denver							
Booth Memorial Hospital	Mat	Church	8	3	18	72	85
Florence Crittenton Home and Hospital	Mat	NPAssn	77	8	9	185	182
St Francis Sanatorium	TB	Church	21	20			52
Englewood 9 680—Arapahoe							
Costello Home	TB	NPAssn	14	8			7
Temple Rest Home	Conv	Indiv	23	No data supplied			
Fort Collins 12,251—Larimer							
Student Health Service Hospital	Inst	State	26	6			902
Golden 3 175—Jefferson							
Hospital—State Industrial School for Boys	Inst	State	25	2			124
Grand Junction 12,479—Mesa							
State Home and Training School for Mental Defectives	MeDe	State	550	495			43
Gunnison 2 177—Gunnison							
Gunnison Community Hosp	Gen	Part	20	7	6	116	500
Holyoke 1,150—Phillips							
Phillips County Hospital	Gen	County	10		5	Estab	1949
Homelake 225—Rio Grande							
Colorado State Soldiers and Sailors Home	Inst	State	35	13			50
Ridge 100—Jefferson							
State Home and Training School for Mental Defectives	MeDe	State	345	340			13

CONNECTICUT

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Bridgeport 147 121—Fairfield							
Bridgeport Hospital★+▲○	Gen	NPAssn	329	335	74	2 416	13 607
Englewood Hospital	IsoTb	City	150	32			514
Park City Hospital	Gen	NPAssn	35	21			907
St Vincent s Hospital★+▲○	Gen	Church	345	280	75	2 602	11 305
Bristol 30 167—Hartford							
Bristol Hospital▲	Gen	NPAssn	166	83	30	719	3 919
Cromwell 3,281—Middlesex							
Cromwell Hall	Nerv	Corp	33	16			44
Danbury 22 339—Fairfield							
Danbury Hospital▲○	Gen	NPAssn	167	121	24	987	5 231
Federal Correctional Institution	Inst	USPHS	33	18			295
Derby 10,287—New Haven							
Griffin Hospital▲	Gen	NPAssn	92	74	26	944	3 709
Greens Farms 275—Fairfield							
Hall Brooke Sanitarium	N & M	Corp	60	47			105
Greenwich 6 000—Fairfield							
Blythewood	N & M	Corp	70	46			160
Greenwich Hospital▲○	Gen	NPAssn	128	92	23	582	4 087
St Luke s Convalescent Hospital	Conv	NPAssn	110	71			773
Hartford, 166 267—Hartford							
Avery Convalescent Hospital	Unit of Hartford Hospital						
Cedarcrest Sanatorium▲	TB	State	243	238			202
Hartford Hospital★+▲○	Gen	NPAssn	864	600	150	5 021	25 871
Institute of Living (Neuro Psychiatric Institute of the Hartford Retreat)+▲	N & M	NPAssn	440	395			834
J J McCook Memorial Hospital▲○	GenIso	City	287	104	12	118	4 370
Mount Sinai Hospital▲	Gen	NPAssn	55	35			1,077
St Francis Hospital★+▲○	Gen	Church	535	453	69	2 392	17,028
Kent 1 245—Litchfield							
Kent School Infirmary	Inst	NPAssn	27	No data supplied			
Lakeville 1,800—Litchfield							
Hotchkiss School Infirmary	Inst	NPAssn	36	15			327
Manchester 23 799—Hartford							
Manchester Memorial Hosp ▲	Gen	NPAssn	154	134	19	504	4,840
Meriden 39 494—New Haven							
Meriden Hospital★▲○	Gen	NPAssn	121	110	30	1 157	5 270
Undercliff Sanatorium+▲	TB	State	359	234			239
Middletown 26 495—Middlesex							
Connecticut State Hosp +▲○	Ment	State	2,990	3 071			985
Middlesex Hospital★▲○	Gen	NPAssn	150	112	30	1 000	4 940

CONNECTICUT—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Milford 16 439—New Haven							
Milford Hospital	Gen	NPAssn	50	32	15	417	1 530
New Britain 68 685—Hartford							
New Britain General Hospital★+▲○	Gen	NPAssn	257	169	35	1 [illegible]	[illegible]
New Canaan 6,221—Fairfield							
Silver Hill Foundation+	N & M	NPAssn	45	36			206
New Haven 160 605—New Haven							
Grace-New Haven Community Hospital							
Grace Unit★+▲○	Gen	NPAssn	163	123	40	1,260	5 582
New Haven Unit★+▲○	Gen	NPAssn	528	384	53	1 [illegible]	11 [illegible]
Hospital of St Raphael★+▲○	Gen	*Church*	*370*	*337*	*60*	*2,540*	*14 019*
Newington 5 449—Hartford							
Newington Home and Hospital for Crippled Children+▲	Orth	NPAssn	178	149			[illegible]
Veterans Admin Hospital+▲	Gen	Vet	352	286			4 [illegible]
New London 30 456—New London							
Lawrence and Memorial Associated Hospitals★+▲○	Gen	NPAssn	261	189	8	1 739	6 889
U S Coast Guard Academy Hospital▲	Gen	USPHS	35	10			480
New Milford 3 000—Litchfield							
New Milford Hospital	Gen	NPAssn	23	15	6	1 6	72
Newtown 603—Fairfield							
Fairfield State Hospital+▲○	Ment	State	2,700	2 564			850
Norwalk 38,849—Fairfield							
Norwalk Hospital★+▲○	Gen	NPAssn	239	177	44	1,379	7,955
Norwich 23 652—New London							
Norwich State Hospital+▲○	Ment	State	2 530	2 685			818
Norwich State Tuberculosis Sanatorium+▲○	TB	State	422	361			[illegible]
William W Backus Hosp ★▲○	Gen	NPAssn	158	95	45	1 207	[illegible]
Portland 2,500—Middlesex							
Elmcrest Manor	N & M	Indiv	42	39			210
Putnam 7 775—Windham							
Day Kimball Hospital▲	Gen	NPAssn	80	66	18	644	2 670
Rockville 7,572—Tolland							
Rockville City Hospital	Gen	NPAssn	51	30	14	121	961
Sharon 500—Litchfield							
Sharon Hospital▲	Gen	NPAssn	55	27	16	244	1,[illegible]
Shelton 10 971—Fairfield							
Laurel Heights State Tuberculosis Sanatorium+▲○	TB	State	261	254			201
Southbury 1 100—New Haven							
Southbury Training School	MeDe	State	1 400	1,[illegible]			53
Southington 5 088—Hartford							
Bradley Memorial Hospital	Gen	NPAssn	50	30	9	443	1 607
Stafford Springs 3 401—Tolland							
Cyril and Julia C Johnson Memorial Hospital▲	Gen	NPAssn	50	29	12	293	1 6 0
Stamford 47,938—Fairfield							
Dr Barnes Sanitarium	N & M	Corp	50	30			61
St Joseph Hospital▲	Gen	Church	90	73	30	940	[illegible] 621
Stamford Hall	N & M	Corp	145	105			280
Stamford Hospital★+▲○	Gen	NPAssn	232	140	27	[illegible]	[illegible]
Torrington 26,988—Litchfield							
Charlotte Hungerford Hosp ▲	Gen	NPAssn	133	95	27	[illegible]	4 100
Wallingford 11 425—New Haven							
Gaylord Farm Sanatorium+	TB	NPAssn	140	130			161
Waterbury 99,314—New Haven							
St Mary s Hospital★+▲○	Gen	Church	324	250	57	[illegible]	10 979
Waterbury Hospital★+▲○	Gen	NPAssn	310	299	68	1 662	10 720
Waterford 100—New London							
The Seaside	TbOrth	State	145	120			44
Westport 8,258—Fairfield							
Westport Sanitarium	N & M	Corp	100	69			2 2
Willimantic 12 101—Windham							
Windham Community Memorial Hosptial▲	Gen	NPAssn	96	64	22	[illegible]	[illegible]
Winsted 7 674—Litchfield							
Litchfield County Hospital▲	Gen	NPAssn	71	50	16	294	1 727

Related Institutions

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Bridgeport 147 121—Fairfield							
Hillside Home and Hospital	Chr	City	275	261			374
East Lyme 3 338—New London							
Ida Thompson Hospital	Unit of Connecticut State Farm for Women Niantic						
Greenwich 6 000—Fairfield							
Nathaniel Witherell Hosp	Chr	City	72	48			108
Mansfield Depot 300—Tolland							
Mansfield State Training School and Hospital	MeDe	State	1 0[illegible]	1 [illegible]			[illegible]
Meriden 39 494—New Haven							
Connecticut School for Boys	Inst	State	36	[illegible]			[illegible]
New Haven 160 605—New Haven							
Jewish Home for the Aged	Inst	NPAssn	[illegible]	[illegible]			4
Yale Infirmary	Inst	NPAssn	40	14			1 2[illegible]
Niantic 1 312—New London							
Connecticut State Farm for Women	Inst	State	245		5		1
Norwalk 39,849—Fairfield							
St Mary s Hospital for Children	Conv	Church	60	55			[illegible]
Rocky Hill 2 679—Hartford							
State of Connecticut Veterans Home and Hospital	Inst	State	545	[illegible]			[illegible]
Stamford 47 938—Fairfield							
Wyndover Hospital	Conv	Corp	50	46			129
Waterbury 99,314—New Haven							
Connecticut Children s Hosp	MeDe	NPAssn	127	126			[illegible]

Key to symbols and abbreviations is on page 38

CONNECTICUT—Continued

Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
West Hartford, 33,776—Hartford							
St Agnes Home	Inst	Church	140	18	9	67	100
West Suffield, 700—Hartford							
Travelers Rest House	Conv	NPAssn	40	12			49
Wethersfield, 9,644—Hartford							
Connecticut State Prison Hospital	Inst	State	30	10			195

DELAWARE

Hospitals and Sanatoriums

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Delaware City, 1,163—New Castle							
Governor Bacon Health Center	Ment	State	540	162			503
Dover 5,517—Kent							
Kent General Hospital▲	Gen	NPAssn	60	57	10	543	2,559
Farnhurst, 500—New Castle							
Delaware State Hospital+▲○	Ment	State	1,255	1,272			511
Lewes, 2,246—Sussex							
Beebe Hospital▲○	Gen	NPAssn	100	56	16	325	2,283
Marshallton 1,500—New Castle							
Brandywine Sanatorium	TB	State	112	103			118
Edgewood Sanatorium	TB	State	68	54			71
Milford 4,214—Sussex							
Milford Memorial Hospital▲○	Gen	NPAssn	100	63	22	780	2,880
Smyrna, 1,870—Kent							
Delaware State Welfare Home Hospital	InstChr	StateCo	378	106	7	1	281
Wilmington, 112,504—New Castle							
Alfred I du Pont Institute of the Nemours Foundation+▲	OrthChil	NPAssn	85	80			104
Delaware Hospital★+▲○	Gen	NPAssn	376	261	64	2,048	10,201
Doris Memorial Hospital○	Unit of Wilmington General Hospital						
Gross Private Hospital	Gen	Corp	15	8	6	118	350
Memorial Hospital★+▲○	Gen	NPAssn	210	141	38	1,155	5,871
St Francis Hospital▲○	Gen	Church	115	63	30	438	2,864
Veterans Admin Hospital	Gen	Vet	150	146			1,867
Wilmington General *Hospital*★+▲○	Gen	NPAssn	184	123	29	1,421	5,601

Related Institutions

Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Stockley, [illegible]—Sussex							
Delaware Colony	MeDe	State	520	502			42

DISTRICT OF COLUMBIA

Hospitals and Sanatoriums

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Washington 796,000							
Adams Hospital	Gen	Indiv	23	12	10	8	581
Central Dispensary and Emergency Hospital★+▲○	Gen	NPAssn	310	208			7,115
Children's Hospital+▲○	Chil	NPAssn	227	113			8,847
Columbia Hospital for Women and Lying In Asylum+▲	MatGyn	NPAssn	125	80	96	3,424	5,445
Doctors Hospital★+▲	Gen	Corp	232	212	61	1,819	9,482
Eastern Dispensary and Casualty Hospital▲	Gen	NPAssn	135	94			3,022
Episcopal Eye, Ear and Throat *Hospital*+▲	ENT	Church	100	65			6,490
Freedmen's Hospital★+▲○	GenPb	Fed	476	371	55	2,069	7,639
Gallinger Municipal *Hospital*★+▲○	Gen	City	1,410	1,048	120	4,596	21,006
Garfield Memorial Hosp ★+▲○	Gen	NPAssn	277	198	103	2,403	9,686
Georgetown University Hospital★+▲○	Gen	Church	360	256	45	2,016	10,555
George Washington University Hospital★+▲	Gen	NPAssn	405	254	72	2,602	11,244
National Homeopathic Hospital▲	Gen	NPAssn	62	35	23	574	2,084
Providence Hospital★+▲○	Gen	Church	297	287	50	2,082	11,219
Saint Elizabeths Hosp ★+▲○	MentGen	Fed	*6,800*	*6,395*	*11*	*6*	*1,470*
Sibley Memorial Hosp ★+▲○	Gen	Church	260	196	90	3,154	11,225
Station Hospital	Gen	USAF	152	91	23	720	4,474
Tuberculosis Sanatorium (*Glenn Dale Sanatorium, Glenn Dale, Md P O*)+▲	TB	City	617	582			393
U S Soldiers Home Hosp ▲	Inst	Fed	378	341			1,370
Veterans Admin Hospital+▲	Gen	Vet	335	277			3,640
Walter Reed General Hospital★+▲	Gen	Army	1,600	1,484	28	1,124	11,093
Washington Sanitarium and Hospital★▲○	Gen	Church	188	183	29	825	4,221

Related Institutions

Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Washington, 796,000							
District Training School (Laurel, Md P O)	MeDe	City	762	651	6		41
Home for the Aged and Infirm	Inst	City	600	142			238
Kendall House Sanitarium	Conv	Indiv	22	11			15
National Training School for Boys Hospital	Inst	Fed	30	7			475
Theodora Snow Memorial Hospital	Mat	NPAssn	12	8	28	116	176
Washington Home for Incurables	Incur	NPAssn	175	174			48

FLORIDA

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Apalachicola, 3,268—Franklin							
Franklin County *Hospital*	Gen	County	14	6	5	76	432
Arcadia, 4,055—De Soto							
Florida State Hosp No 2○	Ment	State	970	870			177
Avon Park, 3,125—Highlands							
Walker Memorial Sanitarium and Hospital	Gen	NPAssn	80	18	6	95	782
Bartow, 6,158—Polk							
Bartow General Hospital	Gen	City	30	14	9	186	1,076
Polk County Hospital	Gen	County	57	44	6	21	957
Bay Pines,—Pinellas							
Veterans Admin Center▲	Gen	Vet	430	392			3,373
Belle Glade, 3,806—Palm Beach							
Belle Glade Memorial Hosp	Gen	CyCo	60	21	16	333	997
Bradenton, 7,444—Manatee							
Bradenton General Hospital	Gen	Part	30	21	8	204	1,071
Century, 2,000—Escambia							
Turberville Hospital▲	Gen	NPAssn	36	26	5	196	1,397
Chattahoochee, 7,110—Gadsden							
Florida State Hospital▲○	Ment	State	6,058	5,436			2,350
Clearwater, 10,136—Pinellas							
Morton F Plant Hospital▲	Gen	NPAssn	75	54	15	451	3,297
Clermont, 1,631—Lake							
South Lake Memorial *Hosp*	Gen	NPAssn	9	2	5	64	195
Coral Gables, 8,294—Dade							
Coral Gables Hospital	Gen	Indiv	51	25	18	371	1,887
Doctors' Hospital	Gen	Corp	100	68	24	975	4,419
Veterans Admin Hospital+▲	Gen	Vet	450	400			4,345
Dade City, 2,561—Pasco							
Jackson Memorial Hospital	Gen	County	25	10	7	184	583
Daytona Beach, 22,584—Volusia							
Halifax District Hospital▲	Gen	NPAssn	130	76	30	679	4,069
De Funiak Springs, 2,570—Walton							
Lakeside Hospital	Gen	Part	40	13	10	249	761
Walton County Hospital	Gen	County	25		8	Estab	1949
De Land, 7,041—Volusia							
De Land Memorial Hospital	Gen	NPAssn	42	21	10	290	1,281
Dunedin, 1,758—Pinellas							
Mease Hospital	Gen	NPAssn	25	10	4	106	579
Eglin Field,—Okaloosa							
Station Hospital	Gen	USAF	125	75	25	422	3,877
Eustis, 2,030—Lake							
Waterman Memorial Hosp	Gen	NPAssn	75	34	16	210	1,632
Fernandina, 3,492—Nassau							
Nassau General Hospital	Gen	County	35	11	11	155	737
Fort Lauderdale, 17,996—Broward							
Broward General Hospital▲	Gen	City	142	94	37	857	4,950
Fort Myers, 10,604—Lee							
Jones Walker Hospital	Unit of Lee Memorial Hospital						
Lee Memorial Hospital	Gen	NPAssn	40	32	10	448	1,941
Fort Pierce, 8,040—St Lucie							
Fort Pierce Memorial Hosp	Gen	NPAssn	50	28	15	298	1,677
Fort Walton, 1,080—*Okaloosa*							
H C White Clinic Hospital	Gen	Indiv	10	3	4	63	627
Gainesville, 13,757—Alachua							
Alachua General Hosp ▲○	Gen	County	116	83	30	1,090	4,576
University of Florida Infirmary	Inst	State	55	8			985
Gulfport, 2,443—Pinellas							
Cedars Hospital	Gen	Indiv	36	18			291
Hollywood, 6,239—Broward							
Hollywood Hospital	Gen	Corp	50	18	8	119	1,285
Homestead, 3,154—*Dade*							
James Archer Smith Hospital	Gen	NPAssn	18	10	8	150	675
Jacksonville, 173,065—Duval							
Brewster Hospital★+▲○	Gen	Church	140	65	35	1,093	2,685
Duval Medical Center★+▲○	Gen	County	326	253	30	900	7,392
Hope Haven Hospital+	OrthChil	NPAssn	100	50			389
Negro Tuberculosis Hospital	TB	CyCo	48	33			59
Riverside Hospital+▲○	Gen	NPAssn	50	43	12	168	1,817
St Luke's Hospital★+▲○	Gen	NPAssn	180	145	30	1,025	7,503
St Vincent's Hospital★+▲○	Gen	Church	200	164	50	2,743	12,659
U S Naval Air Station Dispensary	Gen	Navy	107	14			559
U S Naval Hospital★▲	Gen	Navy	500	362	40	757	5,127
Key West, 12,927—*Monroe*							
Monroe County Hospital	Gen	County	44	11	21	162	950
U S Naval Hospital	Gen	Navy	185	120	17	418	2,425
Kissimmee, 3,225—Osceola							
Kissimmee Hospital	Gen	Indiv	20	9	9	82	498
Osceola Hospital	Gen	Indiv	56	25	10	128	583
Lake City, 5,836—Columbia							
Lake Shore Hospital	Gen	City	63	42	24	416	2,094
Veterans Admin Hospital▲	Gen	Vet	378	322			2,884
Lakeland, 22,068—Polk							
Morrell Memorial Hospital▲	Gen	City	150	73	25	712	3,533
Lake Wales, 5,024—Polk							
Lake Wales Hospital▲	Gen	NPAssn	50	13	18	164	765
Leesburg, 4,687—Lake							
Durham Young Hospital and Clinic	Gen	Indiv	22	6	6	183	1,583
Stevens Clinic and Hospital	Gen	Indiv	18	6	8	131	508
Theresa Holland Hospital	Gen	Indiv	18	10	5	102	777
Live Oak, 3,427—Suwannee							
Suwannee County *Hospital*	Gen	NPAssn	37	17	14	191	1,052
Manatee, 3,595—Manatee							
Riverside Hospital	Gen	Indiv	20	6	3	24	275
Marianna, 5,079—Jackson							
Jackson Hospital	Gen	NPAssn	62	40	18	298	2,775
Northwest Florida State Sanatorium	TB	State	211	190			252

Key to symbols and abbreviations is on page 38

FLORIDA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Melbourne 2 622—Brevard							
Brevard Hospital	Gen	NPAssn	30	5	5	109	450
Florida Rapid Treatment Center	Ven	State	250	200			7 000
Miami 172 172—Dade							
Biscayne Hospital	Gen	Corp	45	15	16	127	1 004
Christian Hospital	Gen	NPAssn	30	15	22	641	879
Dade County Hospital▲	GenTb	County	174	118	16	607	3 614
Edgewater Hospital	Gen	Corp	45	30	30	618	1 766
Jackson Memorial Hosp ★+▲○	Gen	County	533	433	60	3 244	17 596
Miami Medical Center	N & M	Indiv	35	27			712
Miami Retreat Sanatorium	N & M	NPAssn	85	49			1,574
Miami Riverside Hospital	Gen	Corp	44	30	10	100	860
National Children s Cardiac Home	Card	NPAssn	62	37			60
Sun Ray Park Health Resort	Conv	Corp	75	40			645
Victoria Hospital	Gen	Indiv	58	35	22	593	2 804
Miami Beach 28 012—Dade							
Mount Sinai Hospital	Gen	NPAssn	214	44	50		2 184
St Francis Hospital+▲	Gen	Church	175	104	30	823	4 714
Miami Springs 898—Dade							
Miami Battle Creek Sanit	Gen	NPAssn	95	32			562
Ocala 8 986—Marion							
Munroe Memorial Hospital	Gen	CyCo	74	43	15	509	2,024
Opa Locka 1,855—Dade							
North Dade Hospital	Gen	NPAssn	250	59	20	438	1 617
Orlando 36 736—Orange							
Central Florida State Sanatorium▲○	TB	State	380	346			280
Florida Sanitarium and Hospital○	Gen	Church	150	122	25	487	4 371
Orange Memorial Hosp ★+▲○	Gen	NPAssn	214	176	28	1 269	6,253
Page and Fowler Private Hospital	ENT	Part	10	4			936
Station Hospital▲	Gen	USAF	50	23	10	143	1 216
Palatka 7 140—Putnam							
Mary Lawson Sanatorium	Gen	Indiv	35	5	11	57	486
Panama City, 11 610—Bay							
Fraser Clinic Hospital	Gen	Indiv	10	3	5	135	235
Lisenby Hospital	Gen	Indiv	31	16	10	300	1 103
Memorial Hospital	Gen	County	90		25	Estab	1949
Panama City Hospital	Gen	NPAssn	22	15	12	284	1 050
Station Hospital	Gen	USAF	50	35	15	232	1 807
Pensacola 37 449—Escambia							
Escambia General Hospital	Gen	County	78	45		9	2 600
Our Lady of Angels Hospital	Mat	Church	20	17	24	490	500
Pensacola Maternity Hospital	Mat	NPAssn	35	17	30	1 134	1 315
Sacred Heart Hospital▲○	Gen	Church	171	104	24	603	5,910
U S Naval Hospital★▲	Gen	Navy	400	300	27	860	6 483
Plant City 7 491—Hillsborough							
Maguire Hospital	Gen	Indiv	15	10	11	223	1 650
Meriwether Hospital	Gen	Indiv	13	4	4	208	1 068
Port St Joe 2,393—Gulf							
Municipal Hospital	Gen	City	30	15	10	154	1 208
Punta Gorda 1,889—Charlotte							
Charlotte Hospital	Gen	NPAssn	23	9	4	41	450
Quincy 3 888—Gadsden							
Gadsden County Hospital	Gen	NPAssn	30	10	6	2[illegible]3	1 006
Rockledge 725—Brevard							
Eugene Wuesthoff Memorial Hospital	Gen	NPAssn	30	9	8	114	509
St Augustine 12 090—St Johns							
East Coast Hospital▲	Gen	NPAssn	55	48	5	229	1 830
Flagler Hospital▲	Gen	NPAssn	65	36	16	304	1 882
St Petersburg 60,812—Pinellas							
American Legion Hospital for Crippled Children	Orth	NPAssn	35	29			359
Mound Park Hospital▲○	Gen	City	150	136	25	773	5 016
St. Anthony s Hospital▲	Gen	Church	152	111	30	532	4,508
Sanford 10,217—Seminole							
Fernald Laughton Memorial Hospital	Gen	NPAssn	58	21	15	380	1 468
Sarasota 11 141—Sarasota							
Joseph Halton Hospital	Gen	Indiv	7	4	2	6	350
Sarasota Hospital	Gen	City	64	45	14	358	2 005
Sebring 3 155—Highlands							
Sebring General Hospital	Gen	Indiv	20	7	6	42	454
Weems Hospital	Gen	Indiv	24	9	6	114	641
Stuart 2 488—Martin							
Martin County Hospital	Gen	NPAssn	29	10	8	121	510
Tallahassee 16,240—Leon							
Federal Correctional Institution	Inst	USPHS	24	8			188
Forsyth Memorial Sanitarium and Hospital	Gen	Church	7	15	10	23	749
Tallahassee Memorial Hosp ▲	Gen	City	86	37	20	550	2 700
Tampa 108,891—Hillsborough							
Centro Asturiano Hospital	Gen	NPAssn	80	47	16	303	2,070
Clara Frye Tampa Municipal Negro Hospital▲	Gen	City	60	52	6	136	1 085
Hillsborough County Home and Hospital	GenInst	County	125	90	12	378	2 649
St Joseph s Hospital▲	Gen	Church	111	115	30	1,293	5 942
Southwest Florida State Tuberculosis Sanatorium	TB	State	500	450			682
Station Hospital▲	Gen	USAF	150	75	27	361	2 481
Tampa Municipal Hosp ★▲○	Gen	City	300	230	44	1 346	10,507
Tarpon Springs 3 402—Pinellas							
Tarpon Springs Municipal Hospital	Gen	City	14	7	10	60	260
Umatilla 1 149—Lake							
Harry Anna Crippled Children s Home	Orth	NPAssn	100	67			89
Valparaiso 221—Okaloosa							
Bay Hospital	Gen	Corp	13	2	6	161	854
Vero Beach 3 050—Indian River							
Indian River Memorial Hospital	Gen	NPAssn	35	11	12	170	913
Wauchula 2,710—Hardee							
Palmetto Medical Clinic Hospital	Gen	Part	17	12	5	95	1 020
Wauchula Infirmary	Gen	Indiv	20	14	5	112	502
West Palm Beach 33 693—Palm Beach							
Good Samaritan Hospital▲○	Gen	NPAssn	115	73	22	449	3 471
St Mary s Hospital▲	Gen	Church	150	72	25	547	3,514
Winter Haven 6 199—Polk							
Winter Haven Hospital	Gen	NPAssn	64	32	18	413	2,372

Related Institutions

Brooksville 1 607—Hernando							
Hernando County Hospital	Gen	County	28	15	6	160	571
De Soto City 131—Highlands							
Villa Rose	ChilNeur	Indiv	30	30			30
Fort Lauderdale 17,996—Broward							
Provident Hospital	Gen	NPAssn	40	13	7	140	600
Gainesville 18 757—Alachua							
Florida Farm Colony	MeDe	State	550	477			41
Largo, 1 031—Pinellas							
Pinellas County Home and Hospital	Chr	County	85	65			40
McIntosh 397—Marion							
Strange s Hospital	Gen	Indiv	15	9	6	42	321
Miami 172,172—Dade							
Shoulson s Home for Convalescents	Conv	Indiv	40	20			110
Orlando 36 736—Orange							
Holiday House Convalescent Hospital	Conv	Part	24			Estab	1949
St Petersburg 60 812—Pinellas							
Earle Restorium	Conv	Indiv	40	25			150
Florence Crittenton Home	Mat	NPAssn	18	15	12	47	51
Tallahassee 16,240—Leon							
Florida Agricultural and Mechanical College Hosp ○	Gen	State	56	23	35	107	928
Tampa 108 891—Hillsborough							
Ballast Point Manor	N & M	Indiv	30	7			96
West Palm Beach 33 693—Palm Beach							
Baldwins Hospital	Gen	Indiv	8	5	8	132	150

GEORGIA

Hospitals and Sanatoriums

Albany 19 055—Dougherty							
Phoebe Putney Memorial Hospital▲	Gen	CyCo	122	62	30	663	4 538
Alto 217—Habersham							
Alto Medical Center▲	Ven	State	853	353	5	14	13 987
Americus 9 281—Sumter							
Americus and Sumter County Hospital	Gen	NPAssn	40	34	12	804	1 784
Athens 20 650—Clarke							
Athens General Hospital▲	Gen	County	84	55	14	385	2,824
St Mary s Hospital▲	Gen	Church	102	75	16	857	4 439
Atlanta 302,288—Fulton							
Albert Steiner Clinic for Cancer and Allied Diseases+	Unit of Grady Memorial Hospital						
Blackman Walton Sanatorium	Gen	Part	25	16			1 176
Contagious Disease Hospital	Unit of Grady Memorial Hospital						
Crawford W Long Memorial Hospital★+▲○	Gen	NPAssn	444	310	84	5,269	18,[illegible]2
Georgia Baptist Hosp +▲○	Gen	Church	194	170	20	746	6 [illegible]
Grady Memorial Hosp ★+▲○	Gen	County	610	451	90	5 10[illegible]	17 [illegible]0
Henrietta Egleston Hospital for Children+▲	ChilOrth	NPAssn	40	36	4		1 1[illegible]0
Jesse Parker Williams Hosp	Gen	NPAssn	66	38			1 926
Joseph B Whitehead Memorial Hospital	Inst	State	30	5			594
Peachtree Sanitarium	N & M	Part	40	19			8[illegible]
Piedmont Hospital★+▲○	Gen	NPAssn	132	130	18	1,244	5 9[illegible]5
Ponce de Leon Ear Nose and Throat Infirmary▲	ENT	Indiv	26	20			2,528
St Joseph s Infirmary★+▲○	Gen	Church	139	128	2	1 297	6,803
Station Hospital▲	Gen	Army	200	49	8	2[illegible]2	2 64[illegible]
U S Penitentiary Hospital▲	Inst	USPHS	115	4[illegible]			9[illegible]2
Veterans Admin Hospital▲	TB	Vet	225	215			44[illegible]
William A Harris Memorial Hospital	Gen	Corp	50	34	6	84	1 [illegible]01
Augusta 65 919—Richmond							
Oliver General Hospital▲	Gen	Army	1,500	[illegible]	26	454	10 [illegible]1
University Hospital★+▲○	GenTb	City	[illegible]	35[illegible]	40	2 301	15 [illegible]
Veterans Admin Hospital+▲	Ment	Vet	1,342	1,264			1 445
Wilhenford Hospital	Unit of University Hospital						
Bainbridge 6,352—Decatur							
Bainbridge Hospital	Gen	Part	32	4	[illegible]	210	[illegible]
Riverside Hospital	Gen	Part	32	14	6	157	[illegible]
Blakely 2 774—Early							
Wall Hospital	Gen	Indiv	16	5	6	45	451
Blue Ridge 1,3[illegible]—Fannin							
Brooks Hospital	Gen	Corp	10		4	Estab	1949

Key to symbols and abbreviations is on page 38

GEORGIA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Bowdon, 1,024—Carroll							
Jubal Watts Memorial Hosp	Gen	Indiv	36	27	6	143	1,030
Brunswick, 15,035—Glynn							
City Hospital	Gen	CyCo	120	39	17	566	2,766
Buchanan, 504—Haralson							
Haralson County Hospital	Gen	NPAssn	20	6	10	41	270
Buford, 4,101—Gwinnett							
Hutchins Memorial Hosp	Gen	Corp	22	7	9	214	496
Butler, 1,093—Taylor							
Montgomery Hospital	Gen	Indiv	22	9	5	70	564
Cairo, 4,653—Grady							
Grady County Hospital	Gen	County	21	9	6	172	326
Calhoun, 2,955—Gordon							
Johnston Hall Hospital	Gen	Indiv	25	7	5	279	970
Canton, 2,651—Cherokee							
Cokers' Hospital	Gen	Indiv	50	25	8	252	1,555
Carrollton, 6,214—Carroll							
Tanner Memorial Hospital	Gen	CyCo	40		10	Estab	1949
Cartersville, 6,141—Bartow							
Howell Quillian Clinic Hosp	Gen	Part	24	9	10	457	1,254
Wofford Stanford Hospital	Gen	Part	12	3	3	148	390
Cedartown, 9,025—Polk							
Polk General Hospital	Gen	NPAssn	30	15	12	435	1,792
Chamblee, 1,081—De Kalb							
Veterans Admin Hosp +▲	Gen	Vet	631	555			7,390
Columbus, 53,280—Muscogee							
Columbus City Hospital▲○	Gen	City	230	177	54	1,821	9,739
Cumming, 958—Forsyth							
Mary Alice Hospital	Gen	Part	31	12	8	254	902
Cuthbert, 3,447—Randolph							
Patterson Hospital▲	Gen	Part	48	No data supplied			
Dallas, 1,922—Paulding							
Matthews Hospital	Gen	Indiv	14	10	6	200	336
Dalton, 10,448—Whitfield							
Hamilton Memorial Hospital	Gen	NPAssn	45	40	12	958	2,908
Decatur, 16,561—De Kalb							
Scottish Rite Hospital for Crippled Children+▲	Orth	NPAssn	60	50			807
Donalsonville, 1,718—Seminole							
Donalsonville Hospital▲	Gen	Part	30	19	6	211	1,313
Douglas, 5,175—Coffee							
Douglas Hospital	Gen	City	30	18	12	600	2,023
Dublin, 7,814—Laurens							
Claxton Sanitarium	Gen	Indiv	65	45	12	274	2,535
Coleman Hospital	Gen	Indiv	45	No data supplied			
Veterans Admin Hospital	Gen	Vet	300	255			2,605
Duluth, 676—Gwinnett							
Joan Glancy Memorial Hosp	Gen	NPAssn	14	4	14	335	413
Eastman, ,311—Dodge							
Coleman Memorial Hosp▲	Gen	Part	18	7	5	78	631
Elberton, 6,188—Elbert							
Elbert County Hospital	Gen	CyCo	10	10	5	167	934
Thompson Johnson Hospital	Gen	Part	13	6	4	65	1,903
Emory University, 250—De Kalb							
Emory University Hosp ★+▲○	Gen	NPAssn	277	237	86	1,597	9,001
Folkston, 1,024—Charlton							
McCoy Jackson Hospital	Gen	Part	11	3	4	120	450
Fort Benning—Chattahoochee							
Station Hospital▲	Gen	Army	600	252	32	1,212	9,365
Franklin, 390—Heard							
Heard County Memorial Hospital	Gen	County	22	7	6	69	450
Gainesville, 10,24 —Hall							
Downey Hospital▲	Gen	Corp	52	34	14	559	2,336
Hall County Memorial Hosp	Gen	County	36	19	10	136	1,144
Greensboro, 2,459—Greene							
Minnie G Boswell Memorial Hospital	Gen	County	28		12	Estab	1949
Griffin, 13,222—Spalding							
R F Strickland and Son Memorial Hospital▲	Gen	CyCo	47	36	11	623	2,913
Hahira, 980—Lowndes							
Smith Hospital	Gen	Indiv	36	19	8	209	1,467
Hawkinsville, 3,000—Pulaski							
R J Taylor Memorial Hosp	Gen	NPAssn	36	14	7	185	1,536
Jasper, 576—Pickens							
Roper Hospital	Gen	Indiv	40	20	8	247	1,511
Jesup, 2,903—Wayne							
Ritch Leaphart Hospital	Gen	Part	56	28	13	432	1,480
La Grange, 21,983—Troup							
City County Hospital▲	Gen	CyCo	140	65	19	764	3,805
Louisville, 1,803—Jefferson							
Jefferson Hospital	Gen	Indiv	35	20	6	250	1,442
Lyons, 1,900—Toombs							
Aiken Hospital	Gen	Indiv	16	7	6	154	604
Macon, 57,865—Bibb							
Clinic Hospital	Gen	Corp	40	24	8	230	1,732
Macon Hospital▲○	Gen	CyCo	224	212	40	2,216	8,866
Mercy Hospital▲	Gen	Church	35	22	10	459	1,698
Middle Georgia Hospital▲○	Gen	Corp	50	43	10	205	2,435
St Luke Hospital	Gen	NPAssn	32	8	5	40	358
Marietta, 8,667—Cobb							
Marietta Hospital	Gen	Corp	54	32	24	720	2,520
Metter, 1,823—Candler							
Kennedy Memorial Hospital	Gen	Indiv	20	12	6	123	789
Milledgeville, 6,778—Baldwin							
Allen's Invalid Home	N&M	Indiv	131	120		*	423
Milledgeville State Hosp	Ment	State	9,559	9,586			2,390
Richard Binion Clinic Hosp	Gen	Indiv	60	24	15	250	1,136
Scott Hospital	Gen	Indiv	25	19	6	90	725
Millen, 2,820—Jenkins							
Millen Hospital▲	Gen	Indiv	24	11	8	74	623
Mulkey Hospital	Gen	Part	35	15	10	243	1,030
Monroe, 4,108—Walton							
Walton County Hospital	Gen	County	38	13	13	382	1,300
Montezuma, 2,846—Macon							
Macon County Clinic Hosp	Gen	Part	45	14	5	69	750
Riverside Sanatorium	Gen	Indiv	35	15	8	101	864
Moultrie, 10,147—Colquitt							
Vereen Memorial Hospital	Gen	NPAssn	58	30	14	602	2,701
Nashville, 2,440—Berrien							
Askew Memorial Hospital	Gen	Indiv	16	6	6	111	512
Ocilla, 2,124—Irwin							
Ocilla Hospital	Gen	Part	29	14	5	256	1,250
Pelham, 2,579—Mitchell							
Howard Pirkle Hospital	Gen	Part	20	9	6	99	825
Quitman, 4,450—Brooks							
Brooks County Hospital	Gen	CyCo	35	15	6	175	1,409
Reidsville, 805—Tattnall							
Jelks Hospital	Gen	Indiv	14	8	2	130	500
Reynolds, 871—Taylor							
Dr F H Sams Hospital	Gen	Indiv	12		5	Estab	1949
Rome, 26,282—Floyd							
Battey State Hospital▲	TB	State	1,400	1,338			1,125
Floyd Hospital▲	Gen	County	110	85	31	900	5,802
McCall Hospital▲	Gen	Corp	63	38	24	697	3,252
Royston, 1,549—Franklin							
Brown's Hospital	Gen	Indiv	20	7	3	60	600
Sandersville, 3,500—Washington							
Rawlings Sanitarium▲	Gen	NPAssn	60	40	14	214	1,402
Savannah, 95,996—Chatham							
Central of Georgia Railway Hospital▲	Indus	NPAssn	65	53			2,309
Charity Hospital	Gen	NPAssn	100	50	15	395	2,139
Georgia Infirmary	Gen	NPAssn	95	40	12	394	2,295
Oglethorpe Sanatorium	Gen	Corp	50	37	10	54	1,843
St Joseph's Hospital▲○	Gen	Church	124	93	26	713	4,657
Telfair Hospital	Gen	NPAssn	89	71	38	911	4,152
U S Marine Hospital▲	Gen	USPHS	150	139			2,331
Warren A Candler Hosp ▲○	Gen	Church	127	87	23	697	4,024
Smyrna, 1,440—Cobb							
Brawner's Sanitarium	N&M	Indiv	45	33			1,247
Statesboro, 5,028—Bulloch							
Bulloch County Hospital	Gen	County	75	45	12	478	2,648
Thomasville, 12,683—Thomas							
John D Archbold Memorial Hospital▲	Gen	NPAssn	100	91	20	300	4,774
Tifton, 5,228—Tift							
Tift County Hospital	Gen	County	44	27	12	468	887
Toccoa, 5,494—Stephens							
Stephens County Hospital	Gen	County	44	33	9	492	2,301
Trion, 3,800—Chattooga							
Riegel Community Hospital	Gen	NPAssn	80	No data supplied			
Valdosta, 15,595—Lowndes							
Little Griffin Hospital	Gen	NPAssn	100	44	18	624	3,410
Vidalia, 4,109—Toombs							
Gross Mercer Hospital	Gen	Corp	16	5	6	96	300
Vienna, 2,063—Dooly							
Dooly Hospital	Gen	Corp	17	4	5	115	956
Warm Springs, 608—Meriwether							
Georgia Warm Springs Foundation+▲	Orth	NPAssn	165	160			889
Warner Robins, 4,000—Houston							
Station Hospital	Gen	USAF	25	15		*	2,541
Washington, 3,537—Wilkes							
Washington General Hospital	Gen	City	52	31	8	345	2,057
Waycross, 16,763—Ware							
Atlantic Coast Line Hosp ▲	Indus	NPAssn	75	33			1,096
Ware County Hospital	Gen	County	85	56	15	720	3,877
West Point, 3,591—Troup							
Valley Hospital	Gen	City	28	16	7	324	2,487

Related Institutions

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Athens, 20,650—Clarke							
Gilbert Memorial Infirmary	Inst	State	41	3			942
Atlanta, 302,288—Fulton							
Aidmore Children's Convalescent Hospital	Orth	NPAssn	60	58			407
Florence Crittenton Home	Mat	NPAssn	6	2	12	69	75
Our Lady of Perpetual Help Free Cancer Home	Cancer	Church	80	65			299
Barwick, 409—Brooks							
Barwick Hospital	Gen	Indiv	6	3	4	67	302
Chamblee, 1,081—De Kalb							
Chamblee Hospital	Gen	Indiv	8	3	6	233	425
Clayton, 1,088—Rabun							
Rabun County Maternity Hospital	Mat	County	12	5	15	327	324
Columbus, 53,280—Muscogee							
Muscogee County Tuberculosis Hospital	TB	County	45	40			50
Cordele, 7,929—Crisp							
Gillespie Hospital	Gen	Church	25	8	8	27	423
Cornelia, 1,808—Habersham							
Arrendale Hospital	Gen	Indiv	12	6	5	90	530
Gracewood, 500—Richmond							
Georgia Training School for Mental Defectives	MeDe	State	626	601		*	91
Stone Mountain, 1,406—De Kalb							
Brook Haven Manor Sanit	N&M	Indiv	27	22		*	136

Key to symbols and abbreviations is on page 38

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Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
American Falls 1 430—Power							
Schiltz Memorial Hospital	Gen	County	23	7	8	133	625
Blackfoot 3 681—Bingham							
State Hospital South○	Ment	State	750	658			414
Boise 26 130—Ada							
St Alphonsus Hospital▲○	Gen	Church	144	110	27	982	5 455
St Luke's Hospital▲○	Gen	Church	135	97	25	848	5,501
Veterans Admin Hospital▲	Gen	Vet	263	209			2,130
Bonners Ferry 1,345—Boundary							
Community Hospital	Gen	County	22	20	9	160	1 800
Burley 5 329—Cassia							
Cottage Hospital	Gen	Corp	25	13	8	340	1,227
Caldwell 7,272—Canyon							
Caldwell Sanitarium	Gen	Part	20	16	7	191	927
Coeur d Alene 10 049—Kootenai							
Lake City General Hospital	Gen	Indiv	36	30	12	20[illegible]	1 026
Cottonwood 673—Idaho							
Our Lady of Consolation Hospital	Gen	Church	35	23	10	172	903
Council 802—Adams							
Community Hospital	Gen	NPAssn	25	18	20	176	912
Gooding 2,568—Gooding							
Gooding Memorial Hospital	Gen	NPAssn	36		6	Estab	1949
Idaho State Tuberculosis Hospital○	TB	State	70	70			66
Grangeville 1,929—Idaho							
General Hospital	Gen	City	25	14	6	144	550
Hailey 1 443—Blaine							
Hailey Clinical Hospital	Gen	Indiv	20	10	6	66	502
Idaho Falls 15 024—Bonneville							
Idaho Falls Latter Day Saints Hospital▲○	Gen	Church	116	84	40	1 0[illegible]6	5 147
Sacred Heart Hospital▲	Gen	Church	2[illegible]	25	7	101	1 129
Kellogg 4 235—Shoshone							
Wardner Hospital	Gen	Part	45	27	8	344	2 154
Lewiston 10,548—Nez Perce							
St Joseph's Hospital▲○	Gen	Church	120	91	20	746	3 [illegible]
Malad City 2,731—Oneida							
Oneida Hospital	Gen	NPAssn	17	5	7	15[illegible]	440
Moscow 6,014—Latah							
Gritman Memorial Hospital	Gen	Corp	58	45	22	604	2 614
Nampa 12 149—Canyon							
Mercy Hospital▲○	Gen	Church	90	74	23	779	2,030
Samaritan Hospital▲○	Gen	Church	50	39	6	257	[illegible] 071
Orofino 1 602—Clearwater							
Orofino Hospital	Gen	Part	25	12	4	83	508
State Hospital North	Ment	State	467	439			76
Pocatello 18 133—Bannock							
Pocatello General Hospital▲○	Gen	County	70	53	22	402	1 955
St Anthony's Mercy Hosp▲○	Gen	Church	100	67	25	1 008	4 053
Preston 4 236—Franklin							
General Memorial Hospital	Gen	NPAssn	17	10	8	238	395
Rexburg 3 437—Madison							
Harlo B Rigby Hospital	Gen	Indiv	15	6	6	94	318
Rupert 3 107—Minidoka							
Rupert General Hospital	Gen	Indiv	11	6	4	65	506
St Maries 2,234—Benewah							
St Maries Hospital	Gen	NPAssn	25	10	4	86	565
Salmon 2,439—Lemhi							
Steele Memorial Hospital	Gen	County	30		8	Estab	1950
Soda Springs 1 087—Caribou							
Caribou County Hospital	Gen	County	34	15	11	229	870
Stibnite 120—Valley							
Stibnite Hospital	Gen	NPAssn	16	5	3	52	240
Sun Valley 800—Blaine							
Sun Valley Hospital	Gen	Indiv	12	4	2	45	429
Twin Falls 11,851—Twin Falls							
Twin Falls County Hospital	Gen	County	82	70	28	1 105	3 647
Wallace 3 839—Shoshone							
Providence Hospital▲	Gen	Church	50	44	12	240	2 428
Wallace Hospital	Gen	Part	40	17	6	155	1 017
Wendell 1 001—Gooding							
St Valentine's Hospital	Gen	Church	31	27	12	60	1 0[illegible]

Related Institutions

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Boise 26 130—Ada							
Booth Memorial Hospital	Mat	Church	8	8	12	45	57
Idaho State Elks Convalescent Home for Children	Orth	NPAssn	84	60			1[illegible]
Moscow 6 014—Latah							
University of Idaho Infirmary	Inst	State	30	7			655
Nampa 12 149—Canyon							
State School and Colony	MeDe	State	723	663			75
Priest River 1 056—Bonner							
Priest River Hospital	Gen	Indiv	10	2		1	25

ILLINOIS

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Aledo 2,597—Mercer							
Mercer County Hospital	Gen	County	52		12	Estab	1949
Alton 31 255—Madison							
Alton Memorial Hospital▲○	Gen	Church	176	112	34	1 010	6 632
Alton State Hospital+	Ment	State	1 853	1 792			713
St Anthony's Infirmary and Sanitarium	Gen	Church	80	60			570
St Joseph's Hospital+▲○	Gen	Church	165	124	40	1 048	5 842
Amboy 1,986—Lee							
Amboy Public Hospital	Gen	NPAssn	12	4	6	94	2[illegible]6
Anna 4 092—Union							
Anna State Hospital+	Ment	State	2 445	2 319			[illegible]
Hale-Willard Memorial Hosp	Gen	City	16	8	7	304	[illegible]
Aurora 47 170—Kane							
Copley Memorial Hospital▲○	Gen	NPAssn	200	105	30	710	4 467
Kane County Springbrook Sanitarium	TB	County	70	58			9[illegible]
Mercyville Sanitarium○	N&M	Church	172	160			417
St Charles Hospital▲○	Gen	Church	125	94	28	[illegible]	3,9[illegible]
St Joseph Mercy Hospital▲○	Gen	Church	150	95	30	839	3 621
Avon 803—Fulton							
Saunders Hospital	Gen	NPAssn	16	10	7	125	[illegible]
Batavia 5 101—Kane							
Fox River Sanitarium	TB	NPAssn	65	41			82
Beardstown 6,505—Cass							
Schmitt Memorial Hospital	Gen	City	35	31	6	354	1 [illegible]
Belleville 25 405—St Clair							
St Elizabeth's Hospital	Gen	Church	121	145	32	1,9[illegible]	7 [illegible]
Station Hospital▲	Gen	USAF	200	121	12	445	4 107
Belvidere 8 094—Boone							
Highland Hospital	Gen	NPAssn	37	25	5	14[illegible]	1 314
St Joseph's Hospital	Gen	Church	75	50	18	30[illegible]	2 071
Benton 7,372—Franklin							
Moore Hospital	Gen	Indiv	25	12	2	35	415
Berwyn 48 451—Cook							
MacNeal Memorial Hosp*▲	Gen	NPAssn	165	138	45	1 814	8 0[illegible]
Bloomington 32,868—McLean							
Mennonite Hospital▲○	Gen	Church	105	99	25	1 016	3 726
St Joseph's Hospital▲○	Gen	Church	200	153	25	679	4 6[illegible]
Blue Island 16 638—Cook							
St Francis Hospital▲	Gen	Church	110	99	25	[illegible]	4 [illegible]
Breese 2,206—Clinton							
St Joseph Hospital	Gen	Church	42	28	12	302	1 2[illegible]
Bushnell 2,906—McDonough							
Elmgrove McDonough County Tuberculosis Sanatorium	TB	County	40	22		[illegible]	3[illegible]
Cairo 14 407—Alexander							
Alexander County Tuberculosis Sanatorium	TB	County	54	4			87
St Mary's Hospital▲○	Gen	Church	95	65	12	65[illegible]	3 [illegible]
Canton 11,577—Fulton							
Graham Hospital▲○	Gen	NPAssn	112	88	35	750	4 4[illegible]
Carbondale 8 550—Jackson							
Holden Hospital	Gen	Corp	65	43	15	570	2 45[illegible]
Carlinville 4,965—Macoupin							
Macoupin Hospital	Gen	Indiv	22	17	6	[illegible]	949
Carrollton 2,285—Greene							
Boyd Memorial Hospital	Gen	NPAssn	28	11	12	256	1 10[illegible]
Centralia 16 343—Marion							
St Mary's Hospital▲	Gen	Church	85	69	15	737	2 8[illegible]
Champaign 23 302—Champaign							
Burnham City Hospital*▲○	Gen	City	125	101	25	972	5 [illegible]
Mercy Hospital	See Urbana						
Charleston 8 197—Coles							
M A Montgomery Memorial Sanitarium	Gen	NPAssn	34	18	10	340	1 02[illegible]
Chester 5 110—Randolph							
Chester Hospital	Gen	NPAssn	25	15	11	135	[illegible]
Chicago 3,396,808—Cook							
Albert Merritt Billings Hosp	Unit of University of Chicago Clinics						
Alexian Brothers Hosp+▲○	Gen	Church	250	184			4 9[illegible]
American Hospital*+▲	Gen	NPAssn	152	115	25	[illegible]	5 178
Augustana Hospital*+▲○	Gen	Church	275	2[illegible]	50	1 050	8 042
Belmont Community Hosp▲	Gen	NPAssn	110	90	27	815	4,507
Bethany Methodist Hospital▲	Gen	Church	25	16			710
Bethany Sanitarium and Hospital▲	Gen	Church	81	50	21	651	2 710
Bobs Roberts Memorial Hospital for Children	Unit of University of Chicago Clinics						
Burrows Hospital	Gen	Indiv	40	10	6	67	418
Chicago Clinic of Physical Medicine	PhyMed	NPAssn	60	26			1[illegible]
Chicago Eye Ear Nose and Throat Hospital+▲	ENT	Corp	54	13			1 719
Chicago Fresh Air Hospital	TB	NPAssn	70	46			10[illegible]
Chicago Intensive Treatment Center+	Ven	City	150	122			[illegible]
Chicago Lying In Hosp+▲○	Unit of University of Chicago Clinics						
Chicago Memorial Hosp*+▲	Gen	NPAssn	92	89	20	[illegible]	[illegible]
Chicago Physicians and Surgeons Hospital	Gen	Corp	58			Estab	1[illegible]
Chicago State Hospital+▲○	Ment	State	4 [illegible]	4 [illegible]			2,2[illegible]
Children's Memorial Hosp+▲○	Chil	NPAssn	233	119			4,[illegible]
City of Chicago Municipal Tuberculosis Sanitarium+▲○	TB	City	1 [illegible]	1 2[illegible]			1 1[illegible]
Columbus Hospital*▲○	Gen	Church	132	91	18	[illegible]	[illegible]
Cook County Children's Hospital	Unit of Cook County Hospital						
Cook County Hospital*+▲○	Gen	County	3 200	2 [illegible]	225	7,201	7 [illegible]
Cook County Psychopathic Hospital	Unit of Cook County Hospital						
Edgewater Hospital*+▲	Gen	NPAssn	17[illegible]	125	[illegible]	1 0[illegible]	6 977
Englewood Hospital*+▲○	Gen	NPAssn	161	131	32	1 0[illegible]	6 07[illegible]
Evangelical Hospital*▲○	Gen	Church	1[illegible]5	169	60	2,2[illegible]4	8 0[illegible]
Fairview Sanitarium	N&M	Corp	50	40			6[illegible]
Frank Cuneo Memorial Hospital+▲	Mat	Church	75	50	50	1 8[illegible]	2 734
Franklin Boulevard Community Hospital▲	Gen	NPAssn	72	[illegible]			3 106

Key to symbols and abbreviations is on page 38

ILLINOIS—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Garfield Park Community Hospital★▲○	Gen	NPAssn	150	110	32	1,428	7,401
Grant Hospital★+▲○	Gen	NPAssn	236	185	45	1,220	7,501
Henrotin Hospital★+▲○	Gen	NPAssn	100	82	25	656	3,609
Holy Cross Hospital★▲	Gen	Church	143	106	30	1,720	6,444
Home for Destitute Crippled Children	Unit of University of Chicago Clinics						
Hospital of St Anthony de Padua★+▲○	Gen	Church	217	150	38	1,592	8,116
Illinois Central Hosp ★+▲	Gen	NPAssn	262	185	40	1,062	6,850
Illinois Eye and Ear Infirmary+▲	E\&NT	State	132	103			4,506
Illinois Masonic Hosp ★+▲○	Gen	NPAssn	225	185	40	1,235	7,920
Illinois Neuropsychiatric Institute+▲○	Unit of Research and Educational Hospitals						
Illinois Surgical Institute for Children	Unit of Research and Educational Hospitals						
Jackson Park Hospital★▲	Gen	Corp	136	105	20	739	4,725
Kenner Hospital	Gen	NPAssn	65	24			1,383
La Rabida Jackson Park Sanitarium▲	Card	NPAssn	81	60			200
Lewis Memorial Maternity Hospital+▲	MatGyn	Church	150	56	100	1,881	2,761
Loretto Hospital★+▲	Gen	Church	139	113	31	1,210	5,159
Lutheran Deaconess Home and Hospital★+▲○	Gen	Church	193	148	42	1,422	7,178
Manor Hospital	Gen	NPAssn	45	32			1,907
Martha Washington Hosp	Gen	NPAssn	75	52			3,101
Mercy Hospital Loyola University Clinics★+▲○	Gen	Church	369	286	47	1,079	9,054
Michael Reese Hospital★+▲○	Gen	NPAssn	617	479	71	2,452	17,549
Misericordia Hospital and Home for Infants▲	Mat	Church	58	35	19	181	305
Mother Cabrini Memorial Hospital★▲○	Gen	Church	150	82	30	1,083	4,524
Mount Sinai Hospital★+▲○	Gen	NPAssn	285	265	49	1,779	10,243
Municipal Contagious Disease Hospital+▲○	Iso	City	318	63			2,100
Norwegian American Hospital★+▲○	Gen	NPAssn	175	155	50	1,494	7,736
Passavant Memorial Hospital★+▲○	Gen	NPAssn	260	224	37	1,021	7,450
Pinel Sanitarium	N&M	NPAssn	50	38			352
Presbyterian Hospital★+▲○	Gen	NPAssn	435	371	52	1,953	12,925
Provident Hospital★+▲○	Gen	NPAssn	150	147	28	1,777	5,917
Ravenswood Hospital★+▲○	Gen	NPAssn	207	151	53	1,528	7,308
Research and Educational Hospitals★+▲○	GenMent	State	432	369	27	1,088	7,283
Roosevelt Memorial Hospital	Gen	NPAssn	35	20			1,317
Roseland Community Hospital★▲○	Gen	NPAssn	101	81	24	857	3,770
St Anne's Hospital★+▲○	Gen	Church	320	282	80	3,172	11,034
St Anthony de Padua Hosp	See Hospital of St Anthony de Padua						
St Bernard's Hospital★+▲○	Gen	Church	189	139	42	1,243	6,481
St Elizabeth Hospital★+▲○	*Gen*	Church	278	224	77	2,574	9,449
St George Hospital▲	Gen	Church	100	70			3,005
St Joseph Hospital★+▲○	Gen	Church	220	200	30	1,570	5,882
St Luke's Hospital★+▲○	Gen	NPAssn	547	491	55	1,429	17,137
St Mary of Nazareth Hospital★+▲○	Gen	Church	203	184	60	2,339	9,580
St Vincent's Infant and Maternity Hospital+▲	MatChil	Church	235	178	18	367	826
Sarah Morris Hospital for Children	Unit of Michael Reese Hospital						
Shriners Hospital for Crippled Children+▲	Orth	NPAssn	60	59			206
South Chicago Community Hospital★▲○	Gen	NPAssn	200	152	40	1,613	7,088
South Shore Hospital▲	Gen	Corp	100	76	17	800	4,364
Southtown Hospital	Gen	NPAssn	88	52	12	652	3,388
Swedish Covenant Hosp ★+▲○	Gen	Church	193	167	65	1,839	6,370
U S Marine Hospital★+▲	Gen	USPHS	204	185			2,607
University Hospital★▲	Gen	Church	133	71	6		3,001
University of Chicago Clinics★+▲	Gen	NPAssn	526	424	134	3,066	13,056
Veterans Rehabilitation Center+	Ment	State	28	16			127
Walther Memorial Hosp ○	Gen	Church	175	119	31	1,102	6,613
Wesley Memorial Hosp ★+▲○	Gen	Church	571	471	45	1,440	15,958
Women and Children's Hospital★+▲	Gen	NPAssn	115	73	30	954	3,499
Woodlawn Hospital★+▲	Gen	NPAssn	124	92	22	517	3,890
Chicago Heights 22,461—Cook							
St James Hospital▲	Gen	Church	100	82	20	876	4,583
Christopher, 3,582—Franklin							
Miners Hospital	Gen	NPAssn	41	30	10	511	1,623
Clinton, 6,331—DeWitt							
John Warner Hospital	Gen	City	45	33	6	235	1,466
Danville, 36,919—Vermilion							
Lake View Hospital▲○	Gen	NPAssn	155	136	25	1,001	5,803
St Elizabeth Hospital▲○	Gen	Church	183	118	35	1,021	6,370
Vermilion County Tuberculosis Dispensary and Hospital▲	TB	County	60	47			25
Veterans Admin Hospital▲	Ment	Vet	1,871	1,830			1,235
Decatur, 59,305—Macon							
Decatur and Macon County Hospital▲○	Gen	NPAssn	240	191	40	1,292	7,091
Macon County Tuberculosis Sanatorium▲+	TB	County	80	78			143
St Mary's Hospital	Gen	Church	238	195	35	1,368	8,126
Wabash Employes' Hosp ▲	Indus	NPAssn	75	42			1,370

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
De Kalb, 9,146—De Kalb							
De Kalb County Tuberculosis Sanatorium	TB	County	25	14			25
De Kalb Public Hospital▲	Gen	City	42	32	12	316	1,214
St Mary's Hospital▲	Gen	Church	50	42	13	242	1,260
Des Plaines, 9,518—Cook							
Forest Sanitarium	N&M	Indiv	45	22			243
Dixon, 10,671—Lee							
Dixon Public Hospital▲○	Gen	NPAssn	85	66	22	595	2,882
Dixon State Hospital+	McDe	State	5,018	4,030	5	9	512
Downey,—Lake							
Veterans Admin Hosp +▲○	Ment	Vet	2,947	2,400			1,692
Dunning,—Cook							
Chicago State Hospital	See Chicago						
Du Quoin, 7,515—Perry							
Marshall Browning Hospital	Gen	NPAssn	58	41	13	442	1,905
Dwight, 2,499—Livingston							
Veterans Admin Hospital▲	Gen	Vet	228	208			2,279
East Moline, 12,359—Rock Island							
East Moline State Hospital	Ment	State	2,332	2,192			730
East St Louis, 75,609—St Clair							
Christian Welfare Hosp ▲○	Gen	NPAssn	150	143	75	1,198	4,969
Pleasant View Sanatorium+▲	TB	County	102	88			91
St Mary's Hospital★▲	Gen	Church	205	239	36	1,016	6,907
Edwardsville 8,008—Madison							
Madison County Tuberculosis Sanatorium▲	TB	County	90	75			153
Effingham, 6,180—Effingham							
St Anthony's Hospital	Gen	Church	120	Destroyed by fire			
Eldorado, 4,891—Saline							
Ferrell Hospital	Gen	Part	48	38	10	355	1,389
Elgin 38,333—Kane							
Elgin State Hospital+▲	Ment	State	5,975	5,915			2,899
Resthaven Sanitarium	N&M	Indiv	85	75			76
St Joseph Hospital▲	Gen	Church	150	115	30	935	4,958
Sherman Hospital▲○	Gen	NPAssn	125	124	30	803	5,311
Elmhurst, 15,458—Du Page							
Memorial Hospital of Du Page County★▲	Gen	NPAssn	184	151	35	1,374	8,074
Evanston 65,389—Cook							
Community Hospital	Gen	NPAssn	28	20	7	107	884
Evanston Hospital★+▲○	Gen	NPAssn	255	217	49	1,407	7,757
St Francis Hospital★+▲○	Gen	Church	359	289	79	2,284	11,855
Evergreen Park, 3,313—Cook							
Little Company of Mary Hospital★+▲○	Gen	Church	350	242	61	3,257	11,655
Fairbury, 2,300—Livingston							
Fairbury Hospital	Gen	NPAssn	32	22	16	307	1,415
Freeport 22,366—Stephenson							
Deaconess Hospital▲○	Gen	NPAssn	85	70	25	600	2,658
St Francis Hospital▲○	Gen	Church	130	105	20	504	3,717
Galesburg, 28,876—Knox							
Galesburg Cottage Hosp ▲○	Gen	NPAssn	135	102	25	661	3,895
St Mary's Hospital	Gen	Church	90	60	20	484	2,424
Geneseo, 3,824—Henry							
J C Hammond City Hosp ▲	Gen	City	27	19	8	272	1,316
Geneva, 4,101—Kane							
Community Hospital▲	Gen	NPAssn	73	50	20	446	2,257
Granite City, 22,974—Madison							
St *Elizabeth Hospital*▲○	*Gen*	*Church*	125	87	25	1,010	4,305
Great Lakes —Lake							
U S Naval Hospital★+▲	Gen	Navy	800	676	33	780	8,912
Harrisburg, 11,453—Saline							
Harrisburg Hospital	Gen	Corp	30	15	5	200	913
Lightner Hospital	Gen	Corp	32	21	12	225	1,286
Harvard, 3,121—McHenry							
Harvard Community Hosp	Gen	NPAssn	25	15	10	247	676
Harvey, 17,878—Cook							
Ingalls Memorial Hospital▲	Gen	NPAssn	115	71	30	1,041	4,449
Hazel Crest, 1,299—Cook							
Hazel Crest General Hospital	Gen	NPAssn	31	15			1,023
Herrin 9,352—Williamson							
Herrin Hospital	Gen	NPAssn	85	77	20	652	3,124
Highland, 3,820—Madison							
St Joseph's Hospital	Gen	Church	80	77	16	620	2,964
Highland Park, 14,476—Lake							
Highland Park Hospital▲	Gen	NPAssn	51	36	20	369	1,701
Hillsboro, 4,514—Montgomery							
Hillsboro Hospital	Gen	NPAssn	46	41	10	254	1,141
Hines,—Cook							
Veterans Admin Hospital+▲○	GenMent	Vet	3,253	2,622			29,634
Hinsdale 7,336—Du Page							
Hinsdale Sanitarium and Hospital▲○	Gen	Church	129	106	15	532	3,716
Jacksonville, 19,844—Morgan							
Jacksonville State Hosp ○	Ment	State	3,477	3,105			933
Norbury Sanatorium▲	N & M	Corp	100	81			192
'Oaklawn' Morgan County Tuberculosis Sanatorium	TB	County	40	37			70
Our Saviour's Hospital▲○	Gen	Church	90	74	15	381	2,560
Passavant Memorial Hosp ○	Gen	Church	76	72	12	412	3,094
Joliet, 42,365—Will							
Illinois State Penitentiary Hospital	Inst	State	153	80			3,340
St Joseph's Hospital★▲○	Gen	Church	303	290	44	1,937	9,147
Silver Cross Hospital▲○	Gen	NPAssn	171	109	33	877	4,711
Will County Tuberculosis Sanatorium	TB	County	98	70			97
Kankakee, 22,241—Kankakee							
Kankakee State Hospital+▲	Ment	State	4,569	4,271			1,443
St Mary's Hospital▲○	Gen	Church	186	140	42	1,451	6,607

Key to symbols and abbreviations is on page 38

ILLINOIS—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Kewanee 16 901—Henry							
Kewanee Public Hospital▲	Gen	NPAssn	53	43	10	259	1,563
St Francis Hospital▲○	Gen	Church	100	73	18	471	2 140
Lake Forest 6 885—Lake							
Lake Forest Hospital▲	Gen	NPAssn	65	40	10	265	1 533
La Salle 12 812—La Salle							
St Mary's Hospital▲○	Gen	Church	90	75	18	400	2 324
Libertyville 3 930—Lake							
Condell Memorial Hospital	Gen	NPAssn	25	18	10	255	1 006
Magnus Rest Home	N & M	Corp	15	10			12
Lincoln 12 752—Logan							
Evangelical Deaconess Hosp	Gen	Church	65	43	15	344	1 040
Lincoln State School and Colony+	MeDe	State	4 885	4 638	2	5	306
St Clara's Hospital	Gen	Church	65	52	9	247	2 055
Litchfield 7 048—Montgomery							
St Francis Hospital	Gen	Church	158	139	17	656	4 645
Mackinaw 845—Tazewell							
Oak Knoll Sanatorium	TB	County	45	29			49
Macomb 8 764—McDonough							
Phelps Hospital	Gen	NPAssn	43	26	7	264	1,280
St Francis Hospital○	Gen	Church	[illegible]	83	12	402	2 856
Manteno 1 537—Kankakee							
Manteno State Hospital+▲	Ment	State	7 830	7 545			2 693
Marion 9 251—Williamson							
Veterans Admin Hospital▲	Gen	Vet	170	158			2,353
Mattoon 15 827—Coles							
Memorial Methodist Hospital	Gen	Church	50	41	16	650	2,221
Melrose Park 10 033—Cook							
Westlake Hospital▲	Gen	NPAssn	81	49	26	502	2,505
Mendota 4,215—La Salle							
Harris Hospital	Gen	Part	27	16	8	205	685
Metropolis 6,287—Massac							
Metropolis Doctors Hospital	Gen	Corp	25		5	Estab	1949
Moline 34 608—Rock Island							
Lutheran Hospital▲○	Gen	Church	135	106	30	1 004	4 697
Moline Public Hospital★▲○	Gen	City	198	173	45	1,313	8 242
Monmouth 9 096—Warren							
Monmouth Hospital▲	Gen	City	74	66	18	437	1 712
Monticello 2,523—Piatt							
John and Mary E Kirby Hospital	Gen	NPAssn	35	26	8	195	1 10[illegible]
Morris 6 145—Grundy							
Morris Hospital	Gen	NPAssn	40	20	14	206	930
Morrison 3 187—Whiteside							
Morrison Community Hosp	Gen	City	18	11	12	312	767
Mount Vernon 14 724—Jefferson							
Good Samaritan Hospital	Gen	Church	35	27	14	575	1 940
Jefferson County Memorial Hospital	Gen	NPAssn	64	32	16	261	1 210
Moweaqua 1,366—Shelby							
Moweaqua Hospital	Gen	Indiv	28	23	8	16	110
Murphysboro 8 976—Jackson							
St Andrew's Hospital▲	Gen	Church	36	29	10	416	1 740
Naperville 5 272—Du Page							
Edward Sanatorium▲	TB	NPAssn	110	104			244
Normal 6 983—McLean							
Brokaw Hospital▲○	Gen	Church	96	66	14	179	2 409
Fairview Sanatorium	TB	County	55	28			25
North Riverside 1 036 (Riverside P O)—Cook							
Municipal Tuberculosis Sanitarium	Unit of City of Chicago Municipal Tuberculosis Sanitarium						
Oak Forest 825—Cook							
Cook County Infirmary	Chr	County	2,352	1 234			1,233
Cook County Tuberculosis Hospital	TB	County	469	397			527
Oak Park 66,015—Cook							
Oak Park Hospital★▲○	Gen	Church	148	120	44	1 233	5 448
West Suburban Hospital★+▲○	Gen	NPAssn	327	281	100	3 428	11 952
Olney 7 831—Richland							
Olney Sanitarium	Gen	Corp	87	48	18	367	2,235
Oregon 2 825—Ogle							
Warmolts Clinic Hospital	Gen	Indiv	25	13	6	93	571
Ottawa 16 005—La Salle							
Highland	TB	County	84	65			83
Ryburn Memorial Hosp▲○	Gen	City	120	109	28	701	3,805
Pana 5 966—Christian							
Huber Memorial Hosp▲○	Gen	Church	40	35	12	377	1 696
Paris 9 281—Edgar							
Paris Hospital○	Gen	NPAssn	75	67	12	411	2 [illegible]40
Paxton 3 106—Ford							
Paxton Community Hospital	Gen	NPAssn	10	12	8	241	
Pekin 19 407—Tazewell							
Pekin Public Hospital	Gen	NPAssn	92	79	21	73[illegible]	3 4[illegible]0
Peoria 105 087—Peoria							
Costeff Sanatorium	N & M	Corp	17	16			112
John C Proctor Hospital○	Gen	NPAssn	110	87	14	418	3 45[illegible]
Methodist Hospital of Central Illinois★+▲○	Gen	Church	200	169	40	1 [illegible]	7 8[illegible]
Michell Sanatorium	N & M	NPAssn	50	47			16
Peoria Municipal Tuberculosis Sanitarium+▲	TB	City	87	74			91
Peoria State Hospital+▲	Ment	State	2 751	2 625			941
St Francis Hospital★+▲○	Gen	Church	455	391	78	2 927	15 015
Peru 8 983—La Salle							
Peoples Hospital	Gen	NPAssn	50	40	10	174	1,204
Pittsfield 2,884—Pike							
Illini Community Hospital▲	Gen	NPAssn	43		10		
Pontiac 9 585—Livingston							
Livingston County Sanat	TB	County	50	50			6[illegible]
St James Hospital	Gen	Church	50	37	17	3[illegible]	1,315

ILLINOIS—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Princeton 5,224—Bureau							
Julia Rackley Perry Memorial Hospital	Gen	City	60	42	22	44[illegible]	1[illegible]
Quincy 40 469—Adams							
Blessing Hospital▲○	Gen	NPAssn	12[illegible]	97	2[illegible]	655	4 2[illegible]
Hillcrest	TB	County	40	32			[illegible]
St Mary's Hospital★○	Gen	Church	195	171	25	[illegible]82	[illegible]
Rantoul 2 367—Champaign							
Station Hospital▲	Gen	USAF	6[illegible]0	9	1	16	[illegible]
Red Bud 1 302—Randolph							
St Clement's Hospital	Gen	Church	61	30	20	3[illegible]	1 [illegible]
Robinson 4 311—Crawford							
Edward Greer Hospital	Gen	Indiv	20		8	Estab	1949
Rochelle 4,200—Ogle							
Rochelle Hospital	Gen	City	35	20	12	264	1 [illegible]7
Rockford 84 627—Winnebago							
Elmlawn Sanitarium	N & M	Indiv	30	10			401
Rockford Memorial Hosp★▲○	Gen	NPAssn	130	104	25	79[illegible]	6 [illegible]
Rockford Municipal Tuberculosis Sanatorium+▲	TB	City	100	91			171
St Anthony's Hospital★+▲○	Gen	Church	258	196	52	1,515	[illegible]
Swedish American Hosp★▲○	Gen	NPAssn	125	125	30	1 135	5,303
Winnebago County Hospital	GenIso	County	[illegible]6	70	6	4[illegible]	[illegible]2
Rock Island 42 775—Rock Island							
Rock Island County Tuberculosis Sanatorium	TB	County	65	40			[illegible]
St Anthony's Hospital+▲○	Gen	Church	185	165	30	1 055	5 4[illegible]
Rosiclare 1,774—Hardin							
Rosiclare Hospital	Gen	Corp	22	12	5	69	1 012
Rushville 2 480—Schuyler							
Culbertson Hospital	Gen	County	25	16	9	90	432
St Charles 5 870—Kane							
Delnor Hospital▲	Gen	NPAssn	30	21	10	2[illegible]	1 194
Salem 7 319—Marion							
Salem Memorial Hospital	Gen	NPAssn	40	23	10	411	1 752
Sandwich 2 608—De Kalb							
Horatio N Woodward Memorial Hospital	Gen	NPAssn	39	16	9	225	825
Savanna 4 792—Carroll							
Savanna City Hospital	Gen	City	36	20	12	300	2 [illegible]0
Shelbyville 4 092—Shelby							
Shelby County Memorial Hospital	Gen	NPAssn	21	18	10	25[illegible]	1,240
Sparta 3 604—Randolph							
Sutherland Hospital	Gen	Indiv	32	14	10	141	616
Springfield 75 503—Sangamon							
Memorial Hospital★▲○	Gen	NPAssn	253	210	40	1 071	7 718
Palmer Sanatorium▲	TB	Corp	75	71			[illegible]
St John's Crippled Children's School and Hospital	Orth	Church	50	30			52
St John's Hospital○	Gen	Church	692	5[illegible]	75	2 44[illegible]	15 [illegible]
St John's Sanitarium	TB	Church	200	1[illegible]			22[illegible]
Spring Valley 5 010—Bureau							
St Margaret's Hospital	Gen	Church	120	[illegible]	15	4[illegible]1	3 4[illegible]
Sterling 11,363—Whiteside							
Home Hospital	Gen	NPAssn	25	20	6	144	7[illegible]4
Public Hospital▲	Gen	City	5[illegible]	40	14	[illegible]	2 2[illegible]1
Streator 14,930—La Salle							
St Mary's Hospital	Gen	Church	112	[illegible]1	15	8[illegible]1	5 10[illegible]
Sycamore 4 702—De Kalb							
Sycamore Municipal Hosp▲	Gen	City	2[illegible]	19	12	232	9[illegible]4
Taylorville 8,313—Christian							
St Vincent Hospital	Gen	Church	[illegible]4	[illegible]5	22	46[illegible]	3,[illegible]2
Tuscola 2 838—Douglas							
Douglas County Jarman Memorial Hospital	Gen	County	52	30	12	[illegible]	1 32[illegible]
Urbana 14 064—Champaign							
Carle Memorial Hospital▲	Gen	NPAssn	72	50	12	4[illegible]8	[illegible]12[illegible]
Champaign County Hospital	Gen	County	[illegible]	29	10	[illegible]2	[illegible]
Mercy Hospital▲○	Gen	Church	10[illegible]	8[illegible]	10	1 104	4 6[illegible]
The Outlook	TB	County	52	4[illegible]			4[illegible]
Vandalia 5 2[illegible]8—Fayette							
Mark Greer Hospital	Gen	Indiv	[illegible]	[illegible]	12	4[illegible]0	1,[illegible]
Watseka 8 744—Iroquois							
Iroquois Hospital	Gen	NPAssn	[illegible]	2[illegible]	1	[illegible]	1[illegible]1
Waukegan 34,241—Lake							
Lake County General Hosp▲	Gen	County	[illegible]0	[illegible]			[illegible]
Lake County Tuberculosis Sanatorium+▲○	TB	County	100	[illegible]			1[illegible]
St Therese's Hospital▲○	Gen	Church	1[illegible]2	14[illegible]	[illegible]	1,[illegible]	[illegible]
Victory Memorial Hosp▲	Gen	NPAssn	11[illegible]	[illegible]	[illegible]	[illegible]	4,[illegible]
Wedron 202—La Salle							
St Joseph's Health Resort and Sanitarium	MedChr	Church	[illegible]2	[illegible]			1 [illegible]
White Hall 3 025—Greene							
White Hall Hospital	Gen	NPAssn	1[illegible]	[illegible]	[illegible]		1[illegible]
Winfield [illegible]67—Du Page							
Winfield Hospital▲	TB	NPAssn	[illegible]1	[illegible]			10[illegible]
Zace Tuberculosis Sanatorium	TB	Indiv	[illegible]	21			[illegible]
Winnetka 12 430—Cook							
North Shore Health Resort+▲	N & M	Corp	10[illegible]	[illegible]1			
Wood River 8 197—Madison							
Wood River Township Hosp	Gen	NPAssn	6		[illegible]	Estab	194[illegible]
Woodstock 6 123—McHenry							
Woodstock Public Hospital	Gen	NPAssn	[illegible]	[illegible]	1[illegible]		1[illegible]

Related Institutions

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Bartlett 6[illegible]—Cook							
Herrick H[illegible]	ChilCare	NPAssn	[illegible]	[illegible]			1[illegible]
Batavia 5 101—Kane							
Bellevue Place Sanitarium	N & M	Indiv	[illegible]	[illegible]			[illegible]

Key to symbols and abbreviations is on page 38

ILLINOIS—Continued

Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Belleville, 28,405—St Clair							
St Clair County Hospital and Home	Inst	County	98	78	2	8	87
Champaign, 23,302—Champaign							
Cole Hospital	Conv	Part	48	26			1,418
Chicago, 3,396,808—Cook							
Beverly Hills Rest Home	Conv	Indiv	10	8			14
Bigley Rest Home	Conv	Indiv	20	18			32
Brown's Convalescent Home	Conv	Indiv	35	21			84
Catherine Booth Memorial Convalescent Hospital	Conv	Church	30	27			100
Chicago Home for Incurables	Incur	NPAssn	270	265			74
Convalescent Home	Conv	City	160	113			402
House of Correction Hosp	Inst	City	75	5			2,144
Jewish Peoples Convalescent Home	Conv	NPAssn	50	28			547
Long's Convalescent Home	Conv	Indiv	35	32			95
Martha Washington Home for Dependent Crippled Children	Orth	NPAssn	27	21			23
Reynolds Rest Home	Conv	Indiv	35	25			28
Salvation Army Booth Memorial Hospital	Mat	Church	81	51	12	231	267
Washington and Jane Smith Home	InstGen	NPAssn	22	14			160
Danvers, 705—McLean							
Willow Bark Hospital	Alcoh	Corp	10	5			33
Decatur, 59,305—Macon							
City Public Hospital	Iso	City	20	1		1	129
Des Plaines, 9,518—Cook							
Northwestern Hospital	Gen	NPAssn	14	4	5	72	250
Dixon, 10,671—Lee							
Mansion Nursing Home	Conv	Part	22	12			27
Elgin, 38,333—Kane							
Dr Weirick's Sanitarium	N & M	Indiv	25	7			105
Evanston, 65,389—Cook							
Broadhurst Nursing Home	Unit of Broad Nursing Homes						
Broad Nursing Homes	Conv	Part	61	55			111
Presbyterian Home Hosp	ConvInst	Church	54	38			
The Cradle	Chil	NPAssn	60	39			250
Geneva, 4,101—Kane							
State Training School for Girls	Inst	State	22	17			176
Godfrey, 300—Madison							
Beverly Farm	McDe	Corp	250	230			24
Macomb, 8,764—McDonough							
Maple Lane Nursing Home	Conv	Part	21	21			37
Mattoon, 15,827—Coles							
Independent Order Odd Fellows Old Folks Home Hosp	Inst	NPAssn	55	No data supplied			
Menard, 22—Randolph							
Illinois Security Hospital	Ment	State	350	349			90
Mooseheart, 965—Kane							
Philadelphia Memorial Hosp	Chil	NPAssn	65	37			2,120
Normal, 6,983—McLean							
Illinois Soldiers' and Sailors' Children's School Hospital	Inst	State	100	10			845
Oak Lawn, 3,483—Cook							
Rosary Hill Convalescent Home	Conv	Church	30	20			86
Park Ridge, 12,063—Cook							
Park Ridge Convalescent Home	Conv	Indiv	18	18			13
Peoria, 105,087—Peoria							
Florence Crittenton Home	Mat	NPAssn	70	45	4	70	92
Mahoney Convalescent Home	Conv	Part	27	25			47
Pontiac, 9,585—Livingston							
Illinois State Penitentiary Hospital	Inst	State	40	4			1,795
Robinson, 4,311—Crawford							
Griffy Eye and Ear Infirmary	ENT	Indiv	11	1			172
Rockford, 84,637—Winnebago							
Children's Convalescent Home	Orth	NPAssn	35	22			38
St Charles, 5,870—Kane							
Illinois State Training School for Boys	Inst	State	20	8			2,190
Springfield, 75,503—Sangamon							
St Monica's Hall	Inst	Church	20	6			35
Urbana, 14,064—Champaign							
McKinley Memorial Hospital	Inst	State	125	43			2,020
Waterman, 579—De Kalb							
Bellevue Place	N & M	Indiv	40	23			56
Wheaton, 7,389—Du Page							
Mary E Pogue School	McDe	Indiv	90	85			27

INDIANA

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Anderson, 41,572—Madison							
St John's Hickey Memorial Hospital▲○	Gen	Church	250	202	50	1,927	8,318
Angola, 3,141—Steuben							
Cameron Hospitals	Gen	NPAssn	22	12	8	174	504
Argos, 1,190—Marshall							
Kelly Hospital	Gen	NPAssn	10	6	4	77	284
Auburn, 5,415—De Kalb							
Dr Bonnell M Souder Hosp	Gen	Indiv	23	11	7	208	442
Batesville, 3,065—Ripley							
Margaret Mary Hospital	Gen	Church	70	64	24	639	2,074
Bedford, 12,514—Lawrence							
Dunn Memorial Hospital	Gen	County	60	41	12	850	3,205
Beech Grove, 3,907—Marion							
St Francis Hospital+▲	Gen	Church	150	103	50	1,954	6,683
Bloomington, 20,870—Monroe							
Bloomington Hospital	Gen	NPAssn	75	55	25	1,040	3,458
Bluffton, 5,417—Wells							
Clinic Hospital+▲	Gen	Corp	75	57	8	127	2,414
Wells County Hospital	Gen	County	31	16	6	313	707
Clinton, 7,092—Vermillion							
Vermillion County Hospital	Gen	County	42	45	20	483	1,543
Columbus, 11,738—Bartholomew							
Bartholomew County Hosp ▲	Gen	County	75	66	15	881	3,707
Connersville, 12,898—Fayette							
Fayette Memorial Hospital	Gen	NPAssn	46	36	15	589	1,860
Crawfordsville, 11,089—Montgomery							
Montgomery County Culver Union Hospital▲	Gen	County	85	59	18	797	3,897
Crown Point, 4,643—Lake							
James O Parramore Hosp ▲○	TB	County	235	224			101
Decatur, 5,861—Adams							
Adams County Memorial Hospital	Gen	County	50	38	18	629	2,761
Dyer, 976—Lake							
Mount Mercy Hospital and Sanitarium	N & M	Church	75	70			451
East Chicago, 54,637—Lake							
St Catherine's Hospital★▲○	Gen	Church	264	208	60	2,094	8,179
Elkhart, 33,434—Elkhart							
Elkhart General Hospital▲	Gen	NPAssn	113	80	25	1,318	4,655
Elwood, 10,913—Madison							
Mercy Hospital▲	Gen	Church	45	40	15	617	1,889
Evansville, 97,062—Vanderburgh							
Boehne Tuberculosis Hosp +▲	TB	County	130	117			300
Clearview Hospital	N & M	Indiv	30	24			131
Evansville State Hospital	Ment	State	1,200	1,224			240
Protestant Deaconess Hospital★▲○	Gen	Church	243	208	33	2,547	11,086
St Mary's Hospital▲○	Gen	Church	183	140	17	1,018	6,391
Welborn Memorial Baptist Hospital▲○	Gen	Church	128	97	24	993	4,856
Fort Benjamin Harrison,—Marion							
Veterans Admin Hospital▲	Gen	Vet	500	431			3,087
Fort Wayne, 118,410—Allen							
Irene Byron Sanatorium▲	TB	Counties	272	265			216
Lutheran Hospital▲○	Gen	Church	210	178	40	2,0 6	6,779
Methodist Hospital▲○	Gen	Church	118	83	25	1,081	4,005
St Joseph Hospital+▲○	Gen	Church	290	251	60	1,817	9,442
Frankfort, 13,706—Clinton							
Clinton County Hospital	Gen	County	43	34	15	621	2,076
Franklin, 6,264—Johnson							
Johnson County Memorial Hospital	Gen	County	62	28	16	456	1,601
Garrett, 4,255—De Kalb							
Sacred Heart Hospital	Gen	Church	42	32	12	366	1,017
Gary, 11,719—Lake							
Methodist Hospital★▲○	Gen	Church	200	184	69	2,753	9,358
St Mary's Mercy Hosp ★+▲○	Gen	Church	210	203	70	2,001	7,432
Goshen, 11,375—Elkhart							
Goshen Hospital	Gen	NPAssn	34	21	12	865	1,812
Greencastle, 4,872—Putnam							
Putnam County Hospital	Gen	County	48	37	12	449	1,900
Greensburg, 6,065—Decatur							
Decatur County Memorial Hospital	Gen	County	50	34	16	[illegible]	1,567
Hammond, 70,184—Lake							
Mount Mercy Sanitarium	N & M	Church	29	20			197
St Margaret Hospital★+▲○	Gen	Church	260	198	60	2,785	10,609
Hartford City, 6,946—Blackford							
Blackford County Hospital	Gen	County	32	20	8	303	709
Huntingburg, 3,816—Dubois							
Stork Hospital	Gen	Indiv	27	28	16	604	1,051
Huntington, 13,903—Huntington							
Huntington County Hospital	Gen	County	46	39	16	697	1,621
Indianapolis, 386,972—Marion							
Central State Hospital+▲	Ment	State	2,727	2,320			573
Flower Mission Memorial Hospital	Unit of Indianapolis General Hospital						
Indianapolis General Hospital★+▲○	GenTb	City	685	529	56	1,403	10,703
Indiana University Medical Center★+▲○	Gen	State	599	405	74	1,857	11,865
James Whitcomb Riley Hospital for Children	Unit of Indiana University Medical Center						
Kiwanis Home	Unit of Indiana University Medical Center						
Methodist Hospital★+▲○	Gen	Church	617	511	85	4,514	22,483
Norways Sanatorium+	N & M	NPAssn	55	37			492
Public Health Center	Ven	City	110	40			1,137
Robert W Long Hospital	Unit of Indiana University Medical Center						
Rotary Convalescent Home	Unit of Indiana University Medical Center						
St Vincent's Hospital★+▲○	Gen	Church	325	278	60	3,161	13,120
Sunnyside Sanatorium+▲○	TB	County	224	211			182
Veterans Admin Hospital+▲	Gen	Vet	349	314			3,722
William H Coleman Hospital for Women	Unit of Indiana University Medical Center						
Jeffersonville, 11,493—Clark							
Clark County Memorial Hospital▲	Gen	County	91	60	22	811	3,173
Kendallville, 5,431—Noble							
McCray Memorial Hospital	Gen	City	32	30	12	436	1,245

Key to symbols and abbreviations is on page 38

INDIANA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Kokomo 38 795—Howard							
St Joseph Memorial Hosp ▲○	Gen	Church	195	121	56	1 408	5 004
Lafayette 28 798—Tippecanoe							
Lafayette Home Hosp ▲○	Gen	NPAssn	145	88	25	1 005	4,375
St Elizabeth Hospital★+▲○	Gen	Church	305	205	50	1 672	8 605
Wabash Valley Sanitarium	N & M	NPAssn	75	52			196
William Ross Sanatorium	TB	County	27	23			42
La Porte 16 180—La Porte							
Fairview Hospital	Gen	NPAssn	76	48	21	613	2 502
Holy Family Hospital	Gen	Church	98	70	22	507	3,254
Lebanon 6 529—Boone							
Witham Memorial Hospital	Gen	County	70	40	21	652	1 9 6
Linton 6 263—Greene							
Freeman Greene County Hospital	Gen	County	50	28	12	501	2 054
Logansport 20 177—Cass							
Logansport State Hosp +▲	Ment	State	2 404	2 2 4			389
Memorial Hospital▲	Gen	County	70	54	15	509	2,558
St Joseph Hospital▲	Gen	Church	60	54	12	505	2 101
Madison 6 925—Jefferson							
Kings Daughters Hospital	Gen	NPAssn	48	23	14	463	1 654
Marion 26 767—Grant							
Marion General Hospital▲	Gen	NPAssn	105	72	30	1 419	4 791
Veterans Admin Hospital▲	Ment	Vet	*1 750*	*1 779*			352
Martinsville 5 009—Morgan							
Morgan County Memorial Hospital	Gen	County	28	18	10	335	1 040
Michigan City, 26 476—La Porte							
Clinic Hospital▲	Gen	Corp	50	47	12	149	2,090
Indiana Hospital for Insane Criminals	Ment	State	345	340			33
Indiana State Prison Hosp	Inst	State	175	82			820
St Anthony's Hospital▲	Gen	Church	100	68	26	790	3 230
Warren Hospital	Gen	Corp	25	13			556
Mishawaka, 29 298—St Joseph							
St Joseph Hospital★▲○	Gen	Church	112	65	22	974	3 759
Mooresville 1 979—Morgan							
Comer's Sanitarium	Proct	Part	23	17			327
Muncie 49 720—Delaware							
Ball Memorial Hospital★+▲○	Gen	NPAssn	217	195	30	2 312	9 022
New Albany 25 414—Floyd							
St Edward Hospital▲	Gen	Church	125	87	26	1 258	4 002
Silvercrest Southern Indiana Tuberculosis Hospital	TB	State	141	120			147
New Castle 16 620—Henry							
Clinic Hospital	Gen	Part	22	14			1 026
Henry County Hospital▲	Gen	County	110	85	23	1 265	4,374
North Madison 310—Jefferson							
Madison State Hospital	Ment	State	1 550	1 544			316
Oakland City 3 008—Gibson							
Wood Hospital and Clinic	Gen	Indiv	12	7	6	177	457
Peru 12,432—Miami							
Dukes Miami County Memorial Hospital	Gen	County	69	56	18	658	2 161
Wabash Employees Hosp ▲	Indus	NPAssn	50	30			665
Plymouth, 5 713—Marshall							
Parkview Hospital	Gen	County	33	21	12	420	1 292
Portland 6 362—Jay							
Jay County Hospital	Gen	County	35	39	8	407	2 022
Princeton 7 786—Gibson							
Gibson General Hospital▲	*Gen*	NPAssn	46	34	20	616	2 051
Rensselaer 3 214—Jasper							
Jasper County Hospital	Gen	County	40	31	10	482	1 830
Richmond 35 147—Wayne							
Reid Memorial Hospital▲○	Gen	NPAssn	144	118	20	1 041	6,247
Richmond State Hospital	Ment	State	1 732	1 562			370
Smith Esteb Memorial Hosp	TB	County	48	41			51
Rochester 3 835—Fulton							
Woodlawn Hospital	Gen	County	33	24	16	395	1 328
Rockville 2,208—Parke							
Indiana State Sanatorium	TB	State	200	168			153
Rome City 504—Noble							
Kneipp Springs Sanatorium	Gen	Church	125	98			1 927
Rushville 6,000—Rush							
Rushville City Hospital	Gen	City	14	7	8	416	743
Seymour 8,620—Jackson							
Schneck Memorial Hospital	Gen	County	56	33	16	726	260
Shelbyville 10 791—Shelby							
W S Major Hospital	Gen	City	47	37	18	632	2 032
South Bend 101 268—St Joseph							
Healthwin Hospital+▲	TB	County	119	127			132
Memorial Hospital★+▲○	Gen	NPAssn	217	176	45	1 955	8 305
Northern Indiana Children's Hospital	Chil	State	100			Estab 1950	
St Joseph's Hospital★▲○	Gen	Church	184	138	42	1 861	7 255
Sullivan 5 077—Sullivan							
Mary Sherman Memorial Hospital	Gen	County	50	43	12	483	1 770
Tell City 6,395—Perry							
Parkview Hospital	Gen	Indiv	12	8	13	232	858
Terre Haute 62 693—Vigo							
Hoover's Sanatorium	Gen	Indiv	10	4	2	14	308
St Anthony's Hospital★▲○	Gen	Church	190	152	25	1,336	6 179
Union Hospital★▲○	Gen	NPAssn	166	146	24	955	5 115
U S Penitentiary Hospital▲	Inst	USPHS	9	22			[illegible]
Tipton 5 101—Tipton							
Emergency Hospital	Gen	Part	10	5	2	73	184
Union City 3 535—Randolph							
Union City Hospital	Gen	NPAssn	13	9	4	211	[illegible]
Valparaiso 8 736—Porter							
Porter Memorial Hospital▲	Gen	County	96	[illegible]	30	[illegible]	2 671
Vincennes 18,228—Knox							
Good Samaritan Hospital▲○	Gen	County	119	95	22	1 140	4,928
Hillcrest Tuberculosis Hosp	TB	County	60	35			74
Wabash 9 653—Wabash							
Wabash County Hospital	Gen	County	60	40	18	591	2 017
Warsaw 6 378—Kosciusko							
McDonald Hospital	Gen	Indiv	40	35	12	[illegible]	[illegible]
Murphy Medical Center	Gen	Indiv	35	25	12	169	613
Washington 9,312—Daviess							
Daviess County Hospital	Gen	County	105	82	23	789	4 053
Williamsport 1 222—Warren							
Community Hospital	Gen	NPAssn	20	12	7	164	911
Winchester 5,303—Randolph							
Randolph County Hospital	Gen	County	37	28	11	[illegible]	1 644
Wolf Lake 250—Noble							
Lucky Hospital	Gen	Indiv	18	10	7	280	817

Related Institutions

Anderson 41 572—Madison							
Citizens Nursing Center	Gen	Part	15	12		–	816
Butlerville 266—Jennings							
Muscatatuck State School	MeDe	State	1 460	1 430			202
Fort Wayne 118 410—Allen							
Fort Wayne State School	MeDe	State	1 858	1 900			91
Grace Convalescent Hospital	Conv	Indiv	32	14			60
Greencastle 4 872—Putnam							
Indiana State Farm Hospital	Inst	State	50	25			248
Greensburg 6 065—Decatur							
Odd Fellows Home Hospital	Inst	NPAssn	75	50			186
Hammond 70 184—Lake							
Kuhn Clinic Hospital	ENT	Part	12	4			1 358
LaFayette, 28 79—Tippecanoe							
Indiana State Soldiers Home Hospital	Inst	State	112	74			416
Lagrange 1 814—Lagrange							
Lagrange County Hospital	Gen	County	14	9		[illegible]	[illegible]
Martinsville 5 009—Morgan							
Home Lawn Mineral Springs	Conv	Corp	148	110			[illegible]
Martinsville Sanitarium	Conv	Corp	190	[illegible]			2 447
New Castle 16 620—Henry							
Indiana Village for Epileptics	Epil	State	1 050	1 003			70
Pendleton 1 681—Madison							
Indiana State Reformatory Hospital	Inst	State	50	45			1 500
Plainfield 1 811—Hendricks							
Indiana Boys School Hosp	Inst	State	25	8			106

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Hospitals and Sanatoriums							
Akron 1 314—Plymouth							
Akron Hospital	Gen	Indiv	14	7	6	[illegible]	315
Albia 5 157—Monroe							
Smith Hospital	Gen	Indiv	24	9	5	[illegible]	746
Alta 1 269—Buena Vista							
Alta Memorial Hospital	Gen	NPAssn	20	9	9	62	310
Ames 12,555—Story							
Iowa State College Hosp ▲	Inst	State	75	11			1 150
Anamosa 4 069—Jones							
Mercy Hospital	Gen	Church	[illegible]	24	10	291	1 117
Atlantic 5 802—Cass							
Atlantic Memorial Hospital	Gen	NPAssn	[illegible]	42	10	[illegible]	1 096
Battle Creek 827—Ida							
Battle Creek Hospital	Gen	Part	18	7	8	51	248
Bellevue 1 771—Jackson							
Bellevue Memorial Hospital	Gen	Church	25	9	7	[illegible]	478
Belmond 2 109—Wright							
Steele Memorial Hospital	Gen	Part	13	8	7	[illegible]	594
Buffalo Center 911—Winnebago							
Dolmage Hospital	Gen	Indiv	14	9	8	[illegible]	[illegible]
Burlington 25 832—Des Moines							
Burlington Protestant Hospital▲○	Gen	NPAssn	105	[illegible]	20	410	5 047
Mercy Hospital▲○	Gen	Church	100	105	25	484	[illegible]
St Francis Hospital	Gen	Church	65	44	15	[illegible]	1 642
Carroll 5 389—Carroll							
St Anthony Hospital▲○	Gen	Church	115	91	[illegible]	902	4,514
Cedar Falls 9,349—Black Hawk							
Sartori Memorial Hospital▲	Gen	City	45	29	10	409	1 534
Cedar Rapids 62 120—Linn							
Mercy Hospital★▲○	Gen	Church	204	161	[illegible]	1 155	[illegible]
St Luke's Methodist Hospital★+▲○	Gen	Church	209	[illegible]	[illegible]	1 474	[illegible]
Centerville 8 413—Appanoose							
St Joseph's Mercy Hosp ▲	Gen	Church	46	[illegible]	12	407	[illegible]
Chariton 5 754—Lucas							
Yocom Hospital	Gen	Indiv	25	17	10	157	[illegible]
Charles City 8 6 1—Floyd							
Cedar Valley Hospital	Gen	City	60	[illegible]	[illegible]		2 877
Cherokee 7 469—Cherokee							
Cherokee State Hospital+	Ment	State	[illegible]	[illegible]			[illegible]
Sioux Valley Hospital▲	Gen	NPAssn	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Clarinda 4 905—Page							
Clarinda Municipal Hospital	Gen	City	[illegible]	[illegible]	14		[illegible]
Clarinda State Hospital	Ment	State	[illegible]	[illegible]			[illegible]

Key to symbols and abbreviations is on page 38

IOWA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Clinton, 26,270—Clinton							
Jane Lamb Memorial Hospital▲○	Gen	NPAssn	100	68	10	629	3,565
St Joseph Mercy Hospital▲	Gen	Church	100	81	25	636	5,861
Colfax, 2,252—Jasper							
Colfax Sanitarium	Gen	Corp	18	7	1	23	108
Council Bluffs, 41,439—Pottawattamie							
Jennie Edmundson Memorial Hospital★▲○	Gen	NPAssn	135	101	20	1,109	5,452
Mercy Hospital★▲○	Gen	Church	185	140	30	875	5,557
St Bernard's Hospital○	N&M	Church	200	188			740
Cresco, 3,550—Howard							
St Joseph Mercy Hospital	Gen	Church	28	17	10	266	975
Davenport, 66,039—Scott							
Mercy Hospital★▲○	Gen	Church	276	196	61	1,609	8,706
Pine Knoll Sanatorium	TB	County	70	42			49
St Elizabeth's and St John's Hospitals	Units of Mercy Hospital						
St Luke's Hospital▲○	Gen	Church	90	88	22	824	4,084
Decorah, 5,303—Winneshiek							
Decorah Hospital▲	Gen	Church	52	43	13	440	1,683
Denison, 4,361—Crawford							
Denison Hospital	Gen	Indiv	21	15	12	262	1,100
Des Moines, 159,819—Polk							
Broadlawns Polk County Hospital★+▲○	GenIso	County	167	117	20	324	4,732
Broadlawns Polk County Hospital▲	TB	County	90	89			75
Iowa Lutheran Hospital★▲○	Gen	Church	135	137	20	1,196	5,713
Iowa Methodist Hospital★+▲○	Gen	Church	312	263	52	1,881	11,548
Mercy Hospital★+▲○	Gen	Church	190	183	30	1,579	10,031
Raymond Blank Memorial Hospital for Children+	Unit of Iowa Methodist Hospital						
Retreat Hospital	N&M	Corp	52	52			343
Veterans Admin Center+▲	Gen	Vet	501	449			6,604
Dexter, 700—Dallas							
Chapler Osborn Clinic Hosp	Gen	Part	24	20	6	109	990
Dubuque, 43,892—Dubuque							
Finley Hospital▲○	Gen	NPAssn	113	82	20	522	3,604
St Joseph Mercy Hosp▲○	Gen	Church	408	152	35	777	5,777
St Joseph Sanitarium○	N&M	Church	232	226			696
Sunny Crest Sanatorium▲	TB	County	70	52			58
Xavier Hospital	Gen	Church	100	55	22	549	1,743
Emmetsburg, 3,374—Palo Alto							
Emmetsburg Hospital	Gen	NPAssn	23	22	11	324	1,456
Estherville, 5,651—Emmet							
Holy Family Hospital	Gen	Church	55	53	14	631	3,119
Forest City, 2,545—Winnebago							
Forest City Municipal Hosp	Gen	City	25	14	8	292	680
Fort Dodge, 22,904—Webster							
Lutheran Hospital▲	Gen	Church	120	103	25	1,056	6,485
St Joseph Mercy Hospital▲○	Gen	Church	125	107	20	777	4,702
Fort Madison, 14,063—Lee							
Atchison, Topeka and Santa Fe Railway Employees' Hosp	Indus	NPAssn	40	18			414
Sacred Heart Hospital	Gen	Church	80	61	15	549	4,707
Grinnell, 5,210—Poweshiek							
Community Hospital	Gen	NPAssn	40	27	6	140	1,226
St Francis Hospital	Gen	Church	40	30	10	285	1,290
Hamburg, 2,187—Fremont							
Hamburg Hospital	Gen	Indiv	20	27	10	252	2,397
Hampton, 4,006—Franklin							
Lutheran Hospital▲	Gen	Church	48	25	12	443	1,596
Hartley, 1,503—O'Brien							
Hand Hospital	Gen	Part	12	9	5	121	493
Hull, 1,072—Sioux							
Hull Hospital	Gen	Corp	15	9	5	93	577
Independence, 4,342—Buchanan							
Independence State Hospital	Ment	State	1,607	1,701			408
Peoples Hospital	Gen	NPAssn	35	25	18	400	1,351
Iowa City, 17,182—Johnson							
Children's Hospital	Unit of University Hospitals						
Iowa State Psychopathic Hospital+	Ment	State	60	51			373
Mercy Hospital+▲○	Gen	Church	148	123	35	794	5,498
University Hospitals★+▲○	Gen	State	891	715	55	1,305	20,565
Keokuk, 15,076—Lee							
Graham Hospital	Gen	NPAssn	65	70	15	451	2,770
St Joseph's Hospital	Gen	Church	140	102	25	459	4,372
Knoxville, 6,936—Marion							
Collins Memorial Hospital	Gen	Part	30	18	5	198	1,199
Veterans Admin Hospital+▲	Ment	Vet	1,708	1,664			198
Lake City, 2,216—Calhoun							
McCrary Rost Hospital	Gen	Part	15	12	6	119	464
McVay Memorial Hospital	Gen	Part	18	15	6	190	823
Laurens, 1,304—Pocahontas							
Hovenden Memorial Hospital	Gen	NPAssn	10	6	6	101	354
Le Mars, 5,353—Plymouth							
Sacred Heart Hospital▲	Gen	Church	68	38	15	700	2,113
Leon, 2,307—Decatur							
Decatur County Hospital	Gen	County	27	22	12	260	1,287
Marshalltown, 19,240—Marshall							
Evangelical Deaconess Home and Hospital○	Gen	Church	150	118	22	630	4,109
St Thomas Mercy Hospital	Gen	Church	102	74	20	492	2,207
Mason City, 27,080—Cerro Gordo							
Park Hospital▲	Gen	Corp	56	44	15	314	1,880
St Joseph's Mercy Hosp▲○	Gen	Church	200	174	56	1,145	7,159
McGregor, 1,3[illegible]—Clayton							
McGregor Community Hosp	Gen	NPAssn	15	9	3	80	219

IOWA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Monticello, 2,546—Jones							
John McDonald Hospital	Gen	NPAssn	45	18	12	257	862
Mount Pleasant, 4,610—Henry							
Mount Pleasant State Hosp	Ment	State	1,602	1,485			328
Muscatine, 18,286—Muscatine							
Bellevue Hospital	Gen	NPAssn	48	38	12	306	2,159
Benjamin Hershey Memorial Hospital	Gen	NPAssn	50	45	14	414	2,767
New Hampton, 2,933—Chickasaw							
St Joseph's Hospital▲	Gen	Church	52	42	12	371	1,861
Newton, 10,462—Jasper							
Skiff Memorial Hospital▲	Gen	City	56	32	10	424	1,475
Oakdale—Johnson							
State Sanatorium+▲	TB	State	436	400			336
Oelwein, 7,801—Fayette							
Mercy Hospital	Gen	Church	43	30	15	471	1,900
Onawa, 3,438—Monona							
Onawa Hospital	Gen	Indiv	24	15	6	84	526
Orange City, 1,920—Sioux							
Doornink Hospital	Gen	Indiv	12	8	4	55	284
Grossmann Hospital	Gen	Part	15	8	5	144	427
Osceola, 3,281—Clarke							
Harken Hospital	Gen	Indiv	26	13	5	53	684
Osceola Hospital	Gen	Indiv	20	16	8	211	968
Oskaloosa, 11,024—Mahaska							
Mercy Hospital	Gen	Part	32	24	12	245	1,113
Ottumwa, 31,570—Wapello							
Ottumwa Hospital	Gen	NPAssn	60	47	12	499	2,522
St Joseph Hospital▲○	Gen	Church	125	93	25	783	4,589
Sunnyslope Sanatorium	TB	County	65	18			15
Perry, 5,977—Dallas							
Kings Daughters Hospital	Gen	NPAssn	35	21	9	251	1,252
Pleasantville, 895—Marion							
Community Hospital	Gen	Indiv	10	4	4	14	97
Red Oak, 5,763—Montgomery							
Murphy Memorial Hospital▲	Gen	City	25	24	12	416	1,245
Sheldon, 3,768—O'Brien							
Good Samaritan Hospital	Gen	Church	17	8	8	219	609
Shenandoah, 6,846—Page							
Henry and Catherine L Hand Memorial Hospital	Gen	NPAssn	40	26	10	290	1,410
Sibley, 2,350—Osceola							
Osceola Hospital	Gen	Corp	35	13	12	244	1,105
Sigourney, 2,355—Keokuk							
Sigourney Hospital	Gen	Indiv	20	9	8	153	448
Sioux City, 82,364—Woodbury							
Lutheran Hospital▲○	Gen	Church	86	88	15	478	3,505
Methodist Hospital▲○	Gen	Church	110	107	15	680	4,442
St Joseph Mercy Hosp★▲○	Gen	Church	250	237	50	1,024	9,391
St Vincent's Hospital▲○	Gen	Church	122	134	22	783	5,397
Spencer, 6,599—Clay							
Spencer Municipal Hospital	Gen	City	26	26	12	480	2,216
Spirit Lake, 2,161—Dickinson							
Marcus Snyder Memorial Hospital	Gen	Part	22	20	5	150	931
Storm Lake, 5,274—Buena Vista							
Porath Hospital	Gen	Indiv	12	13	7	418	738
Vinton, 4,163—Benton							
Virginia Gay Hospital	Gen	City	40	27	8	210	828
Washington, 5,227—Washington							
Washington County Hosp▲	Gen	County	54	32	12	513	1,401
Waterloo, 51,743—Black Hawk							
Allen Memorial Hospital▲○	Gen	NPAssn	110	78	30	1,324	4,792
Presbyterian Hospital	Gen	NPAssn	45	47	10	323	2,003
St Francis Hospital▲	Gen	Church	124	94	25	1,057	5,188
Waverly, 4,156—Bremer							
St Joseph Mercy Hospital▲	Gen	Church	50	19	10	351	1,103
West Union, 2,059—Fayette							
West Union Community Hospital	Gen	NPAssn	19	7	8	180	585
Williamsburg, 1,808—Iowa							
Miller Hospital	Gen	Indiv	8	6	5	92	233

Related Institutions

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Davenport, 66,039—Scott							
Isolation Hospital	Iso	County	26	8	1		377
Des Moines, 159,819—Polk							
Junior League Convalescent Home for Children	Conv	NPAssn	18	13			70
Salvation Army Booth Memorial Hospital	Mat	Church	50	33	15	126	151
Glenwood, 4,501—Mills							
Glenwood State School	MeDe	State	2,001	1,835			98
Marshalltown, 19,240—Marshall							
Iowa Soldiers' Home Hosp	Inst	State	154	109			80
Postville, 1,194—Allamakee							
Postville Community Hosp	Gen	City	18	13	7	130	405
Red Oak, 5,763—Montgomery							
Powell School	MeDe	Indiv	66	65			70
Sac City, 3,165—Sac							
Loring Hospital	Gen	NPAssn	11	9	5	153	365
Sioux City, 82,364—Woodbury							
Florence Crittenton Home	Mat	NPAssn	80	40	50	59	79
Toledo, 2,073—Tama							
State Juvenile Home Hosp	Inst	State	25	5			300
Woodward, 895—Dallas							
Woodward State Hospital and School	MeDe	State	1,698	1,680			160

Key to symbols and abbreviations is on page 38

KANSAS

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Abilene 5 671—Dickinson							
Dickinson County Memorial Hospital	Gen	NPAssn	30	18	12	186	929
Anthony 2 873—Harper							
Galloway Hospital	Gen	Indiv	22	20	8	104	823
Arkansas City, 12 752—Cowley							
Mercy Hospital	Gen	NPAssn	42	30	14	300	1 730
Atchison 12 648—Atchison							
Atchison Hospital	Gen	NPAssn	55	35	12	429	2 090
Axtell 545—Marshall							
Axtell Hospital	Gen	Indiv	12	6	5	120	425
Belleville 2 580—Republic							
Belleville Hospital	Gen	Indiv	2	18	6	168	667
Beloit 3 765—Mitchell							
Community Hospital▲	Gen	NPAssn	54	31	15	420	1,593
Caldwell 1 962—Sumner							
Caldwell General Hospital	Gen	Indiv	20	8	5	71	441
Chanute 10 142—Neosho							
Johnson Hospital	Gen	Corp	45	30	5	275	1,235
Clay Center 4 518—Clay							
Clay Center Municipal Hosp	Gen	City	25	20	10	252	1 079
Coffeyville 17 355—Montgomery							
Coffeyville Memorial Hosp	Gen	City	70		24	Estab	1949
Colby 2,458—Thomas							
St Thomas Hospital	Gen	Church	72	30	25	385	1 742
Concordia 6,255—Cloud							
St Joseph s Hospital▲○	Gen	Church	95	80	20	517	3 189
Dodge City 8 487—Ford							
St Anthony s Hospital▲○	Gen	Church	70	56	22	510	2 539
El Dorado 10 045—Butler							
Susan B Allen Memorial Hospital▲○	Gen	NPAssn	54	45	8	474	2,202
Ellsworth 2 227—Ellsworth							
Ellsworth County Veterans Memorial Hospital	Gen	NPAssn	45	34	9	210	1,209
Emporia 13,188—Lyon							
Newman Memorial County Hospital▲○	Gen	County	85	72	20	437	3 044
St Mary s Hospital▲	Gen	Church	75	47	20	380	2 412
Fort Leavenworth 4,982—Leavenworth							
Station Hospital▲	Gen	Army	100	48	12	423	2,230
Station Hospital, U S Disciplinary Barracks	Gen	Army	25	21			413
Fort Riley —Geary							
Station Hospital▲	Gen	Army	350	238	25	507	6,108
Fort Scott 10 577—Bourbon							
Mercy Hospital▲○	Gen	Church	110	96	18	421	3 055
Fowler 563—Meade							
Fowler Community Hospital	Gen	NPAssn	17	9	7	125	340
Garden City 6 285—Finney							
St Catherine s Hospital▲○	Gen	Church	65	58	17	664	3,513
Gardner 510—Johnson							
Reece Hospital	Gen	NPAssn	21	12	6	100	295
Girard, 2,554—Crawford							
Girard General Hospital	Gen	City	22	13	4	75	519
Goessel 800—Marion							
Mennonite Bethesda Hosp	Gen	NPAssn	17	11	5	110	562
Goodland 3 306—Sherman							
Boothroy Memorial Hospital	Gen	Church	50	22	12	285	1 738
Great Bend, 9 044—Barton							
St Rose Hospital▲○	Gen	Church	127	118	26	1 008	5,944
Halstead 1,397—Harvey							
Halstead Hospital▲○	Gen	Church	160	138	8	27	4 113
Harper 1 695—Harper							
Joslin Hospital	Gen	Indiv	10	6	4	63	250
Hays 6 385—Ellis							
Hadley Memorial Hospital	Gen	NPAssn	45	37	10	250	1 806
St Anthony s Hospital▲	Gen	Church	110	98	26	814	4 102
Hillsboro 1,580—Marion							
Salem Hospital	Gen	Church	25	13	8	88	537
Hoisington 3 719—Barton							
Hoisington Hospital	Gen	NPAssn	15	No data supplied			
Holton 2,885—Jackson							
Holton Hospital	Gen	NPAssn	22	12	6	161	495
Horton 2 872—Brown							
Horton Hospital	Gen	Part	40	24	13	240	1 117
Hutchinson 30 013—Reno							
Grace Hospital▲○	Gen	Church	140	107	30	670	4,522
St Elizabeth Mercy Hosp ▲○	Gen	Church	65	59	20	515	2 358
Independence 11 565—Montgomery							
Mercy Hospital▲	Gen	Church	70	57	20	484	2 105
Iola 7,244—Allen							
St John s Hospital	Gen	Church	35	20	14	317	1 402
Junction City 8 507—Geary							
Junction City Municipal Hospital	Gen	City	67	44	20	38[illegible]	1 651
Kansas City 121,458—Wyandotte							
Bell Memorial Hospital	Unit of University of Kansas Medical Center						
Bethany Hospital★▲○	Gen	Church	150	127	30	818	6 456
Douglass Hospital	Gen	Church	46	44	14	115	1 203
Providence Hospital★▲○	Gen	Church	140	129	40	1 286	5,594
St Margaret s Hospital★+▲○	Gen	Church	201	140	29	608	5,516
University of Kansas Medical Center★+▲○	Gen	State	400	369	45	900	8 425
Kingman 3 218—Kingman							
Kingman Memorial Hospital	Gen	City	28	18	11	150	662
Larned 3 533—Pawnee							
Larned State Hospital	Ment	State	1 817	1 780			262
Lawrence 14 390—Douglas							
Haskell Institute Hospital	Inst	IA	36	2			151
Lawrence Memorial Hosp ▲	Gen	City	72	55	25	805	4 013
Watkins Memorial Hospital▲	Inst	State	62	19			1 663

KANSAS—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Leavenworth 19 220—Leavenworth							
Cushing Memorial Hosp ▲	Gen	NPAssn	60	41	15	314	1,8[illegible]2
St John's Hospital▲	Gen	Church	60	45	14	394	1 466
U S Penitentiary Hospital▲	Inst	USPHS	165	64			1 0[illegible]4
Liberal, 4 410—Seward							
Epworth Hospital	Gen	Church	40	41	12	513	1 [illegible]
Lindsborg 1,913—McPherson							
Lindsborg Community Hosp	Gen	NPAssn	25	9	7	60	2 [illegible]5
Little River 603—Rice							
Hoffman Memorial Hospital	Gen	City	15	10	3	19	1 [illegible]
Lyons 4 497—Rice							
Lyons Hospital	Gen	NPAssn	20	10	7	155	651
Manhattan 11 659—Riley							
St Mary Hospital▲○	Gen	Church	98	88	25	737	3 20[illegible]
Marion 2 086—Marion							
Marion Hospital	Gen	NPAssn	11	6	4	80	202
Marysville 4 055—Marshall							
Marysville Hospital	Gen	Indiv	12	5	6	106	318
Randell Hospital	Gen	Indiv	16	8	6	142	462
McPherson 7 194—McPherson							
McPherson County Hospital	Gen	County	53	43	12	309	1,584
Neodesha 3 376—Wilson							
Wilson County Hospital	Gen	County	31	17	14	163	761
Newton 11 048—Harvey							
Axtell Christian Hospital▲	Gen	Church	50	32	8	121	1 942
Bethel Deaconess Hospital▲○	Gen	Church	84	65	10	403	2 [illegible]7
Norton 2 762—Norton							
Norton County Hospital	Gen	County	25	14	8	215	853
State Sanatorium for Tuberculosis▲	TB	State	419	303			406
Oberlin 1,878—Decatur							
Benton Memorial Hospital	Gen	Part	21	No data supplied			
Osawatomie 4 145—Miami							
Osawatomie State Hospital	Ment	State	1 715	1 645			19
Ottawa 10 193—Franklin							
Ransom Memorial Hospital	Gen	County	40	25	14	473	1,[illegible]
Parsons 14,294—Labette							
Mercy Hospital▲○	Gen	Church	75	43	22	475	1 929
Missouri Kansas Texas Railroad *Employees Hospital*	*Indus*	NPAssn	62	25			501
State Hospital for Epileptics	Epil	State	851	721			50
Pittsburg 17,571—Crawford							
Mount Carmel Hospital▲○	Gen	Church	104	80	12	651	3 401
Pratt 6 501—Pratt							
Minnescah Hospital	Gen	Corp	27	13	8	311	1 1[illegible]
Quinter 481—Gove							
Gove County Hospital	Gen	County	8	8	6	89	513
Russell 4,819—Russell							
Russell City Hospital	Gen	City	24	19	10	203	1 1[illegible]5
Sabetha 2,241—Nemaha							
St Anthony Murdock Memorial Hospital▲○	Gen	Church	50	32	12	210	1 561
St Francis 1,041—Cheyenne							
St Francis Hospital	Gen	Indiv	30	7	8	151	5[illegible]
St John 1 735—Stafford							
St John Veterans Memorial Hospital	Gen	CyCo	10	10	6	22	2[illegible]
Salina 21 073—Saline							
Asbury Hospital▲○	Gen	Church	75	63	12	402	2,92[illegible]
St John s Hospital▲○	Gen	Church	85	79	20	472	3,211
Station Hospital	Gen	USAF	100	30	12	295	1 709
Scott City 1,848—Scott							
Scott County Hospital	Gen	County	14	5	8	151	610
Seneca 2 015—Nemaha							
Seneca Hospital	Gen	Church	2[illegible]	15	12	130	86
Stafford 2 011—Stafford							
Stafford City Hospital	Gen	City	25	25	10	128	[illegible]
Syracuse, 1,226—Hamilton							
Donohue Memorial Hospital	Gen	County	26	15	12	186	70
Topeka 67,833—Shawnee							
Atchison Topeka and Santa Fe Railway Hospital▲	Indus	NPAssn	140	131			3 180
Jane C Stormont Hosp ▲○	Gen	NPAssn	85	71	25	[illegible]2	3,25[illegible]
Menninger Sanitarium+▲	N&M	NPAssn	70	56			11
St Francis Hospital▲○	Gen	Church	100	82	26	7[illegible]	3 34
Security Benefit Clinic and Hospital	Gen	NPAssn	75	7			3,[illegible]
State Sanatorium Hillcrest Division	TB	State	20	14			112
Station Hospital	Gen	USAF	50	8			4[illegible]
Topeka State Hospital	Ment	State	1 510	1 [illegible]			1
Vail Hospital▲○	Gen	NPAssn	108	[illegible]	[illegible]	[illegible]	4 1[illegible]
Veterans Admin Hospital+▲	Ment	Vet	1 400	1 0[illegible]			4,544
Wadsworth 2,300—Leavenworth							
Veterans Admin Center+▲	Gen	Vet	1 0[illegible]2	1 000			8,[illegible]
Wamego 1 767—Pottawatomie							
Genn Hospital	Gen	City	15	9	8	119	3[illegible]4
Wellington 7,246—Sumner							
Hatcher Hospital▲	Gen	NPAssn	2[illegible]	11	7	45	[illegible]6
St Luke s Hospital	Gen	City	52	26	12	2[illegible]	1,[illegible]
Westmoreland 532—Pottawatomie							
Dechairo Hospital	Gen	Indiv	10	6	5	44	351
Wichita 114 966—Sedgwick							
St Francis Hospital★+▲○	Gen	Church	470	[illegible]	70	2 455	1 4[illegible]
St Joseph s Hospital○	Gen	Church	120	8[illegible]			2 [illegible]
Sedgwick County Hospital	Gen	County	65	56	6	11[illegible]	1,[illegible]1
Sedgwick County Tuberculosis *Sanitarium*	TB	County	25	20			2
Veterans Admin Hospital+▲	Gen	Vet	250	2[illegible]			[illegible],571
Wesley Hospital★+▲○	Gen	Church	370	[illegible]2[illegible]	60	2 1[illegible]	1[illegible]
Wichita Hospital★▲○	Gen	Church	140	110	25	[illegible]	[illegible]

Key to symbols and abbreviations is on page 38

KANSAS—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Winfield, 9,506—Cowley							
St Mary's Hospital▲○	Gen	Church	60	41	9	161	1,639
William Newton Memorial Hospital▲○	Gen	City	53	51	10	294	2,136
Related Institutions							
Ashland, 1,186—Clark							
Ashland Hospital	Gen	NPAssn	11	4	5	105	1,060
Fort Dodge, 550—Ford							
Kansas State Soldiers' Home Hospital	Inst	State	32	7			99
Lansing, 812—Leavenworth							
Kansas State Penitentiary Hospital	Inst	State	47	25			441
Manhattan, 11,659—Riley							
Kansas State College Hosp	Inst	State	57	9			576
Topeka, 67,833—Shawnee							
Florence Crittenton Home	Mat	NPAssn	20	16	10	41	45
Wichita, 114,966—Sedgwick							
Booth Memorial Hospital	Mat	Church	40	23	30	97	107
Suburban Rest Sanitarium	N&M	Part	40	26			67
Winfield 9,506—Cowley							
State Training School	MeDe	State	1,378	1,395			75

KENTUCKY

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Anchorage, 676—Jefferson							
Pleasant Grove Hospital	N&M	NPAssn	65	56			494
Ashland 29 537—Boyd							
Federal Correctional Institution	Inst	USPHS	31	10			379
Kings Daughters Hospital	Gen	NPAssn	150	107	26	1,441	5 791
Barbourville, 2 420—Knox							
Knox Hospital	Gen	Part	22	9	7	115	547
Berea, 2 176—Madison							
Berea College Hospital▲○	Gen	NPAssn	70	25	8	285	2 263
Beverly 360—Bell							
Red Bird Evangelical Hosp	Gen	Church	11	6	5	59	218
Bowling Green, 14 585—Warren							
City Hospital	Gen	City	55	43	14	788	2,469
Campbellsville, 2,458—Taylor							
Rosary Hospital	Gen	Church	35	16	12	[illegible]	[illegible]
Camp Campbell,—Christian							
Station Hospital	Gen	Army	250	58	14	274	2 018
Clinton 1,540—Hickman							
Jackson Hospital	Gen	Indiv	14	6	4	48	390
Corbin 7 [illegible]—Whitley							
Smith Hospital	Gen	Indiv	35	15	9	283	1,026
Covington, 62 018—Kenton							
Covington Kenton County Tuberculosis Sanatorium	TB	County	17	16			13
St Elizabeth Hospital★▲○	Gen	Church	312	251	54	2,314	9 202
Wm Booth Memorial Hosp▲	Gen	Church	103	88	22	1,243	3,910
Cynthiana 4 840—Harrison							
Harrison Memorial Hospital	Gen	NPAssn	32	18	8	263	890
Danville, 6,734—Boyle							
Ephraim McDowell Memorial Hospital	Gen	NPAssn	76	67	24	681	5,268
Kentucky State Hospital	Ment	State	1 415	1 072			120
Dayton, 8 379—Campbell							
Speers Memorial Hospital▲○	Gen	County	100	72	19	781	2 915
Fort Knox,—Hardin							
Station Hospital▲	Gen	Army	400	287	21	958	7,867
Fort Thomas, 11,034—Campbell							
Veterans Admin Hospital▲	Gen	Vet	362	185			725
Frankfort, 11 492—Franklin							
Kings Daughters Hospital	Gen	NPAssn	75	54	16	672	3 412
Frenchburg, 250—Menifee							
Jam Cook Hospital	Gen	Church	14	6	5	101	524
Fulton 3,308—Fulton							
Fulton Hospital	Gen	Corp	40	22	7	200	1,501
Haws Memorial Hospital	Gen	Indiv	30	25	6	115	920
Georgetown, 4,420—Scott							
John Graves Ford Memorial Hospital	Gen	Corp	33	23	12	245	1,295
Glasgow 5 815—Barren							
Clinic Hospital	Gen	Corp	44			Estab	1949
T J Samson Community Hospital▲	Gen	NPAssn	98	71	18	883	4 511
Grayson 1,176—Carter							
I Q Stovall Memorial Hosp	Gen	Indiv	20	12	6	171	816
Greenville 2 547—Muhlenberg							
Muhlenberg Community Hospital	Gen	NPAssn	57	37	16	567	2,680
Harlan 5 122—Harlan							
Harlan Hospital	Gen	Corp	65	42	10	580	2 993
Hazard 7 397—Perry							
Hurst Snyder Hospital	Gen	Corp	25	12	6	183	2,0[illegible]
Mount Mary Hospital	Gen	Church	72	52	10	266	3,785
Henderson, 13 160—Henderson							
Methodist Hospital	Gen	Church	80	37	20	562	2,251
Hopkinsville, 11 724—Christian							
Jennie Stuart Memorial Hospital▲	Gen	NPAssn	65	47	20	571	2,843
Western State Hospital	Ment	State	2,084	1,606			501
Hyden, 345—Leslie							
Hyden Hospital of the Frontier Nursing Service	Gen	NPAssn	19	14	8	161	510

KENTUCKY—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Jenkins, 9,428—Letcher							
Sharon Heights Hospital	Gen	Church	84	12	7	80	818
Kuttawa, 1,125—Lyon							
Dyer Hospital	Gen	Indiv	17	-	5	Estab	1949
Lackey, 472—Floyd							
Stumbo Memorial Medical Foundation	Gen	NPAssn	84		5	Estab	1949
La Grange, 1,334—Oldham							
Mallory Taylor Memorial Hospital	Gen	City	30	15	10	312	1 067
Lakeland, 65—Jefferson							
Central State Hospital	Ment	State	2,256	2,102			600
Lebanon, 3,786—Marion							
Mary Immaculate Infirmary	Gen	Church	35	18	14	654	1,488
Lexington, 49,304—Fayette							
Eastern State Hospital	Ment	State	2,000	1 606			500
Good Samaritan Hosp★+▲○	Gen	Church	285	254	36	1,368	9,615
Julius Marks Sanatorium▲	TB	County	115	113			178
Our Lady of the Oaks Hospital○	N&M	Church	35	23			879
St Joseph Hospital★+▲○	Gen	Church	320	231	50	1,205	10 665
Shriners Hospital for Crippled Children▲	Orth	NPAssn	25	21			68
U S Public Health Service Hospital+▲○	DrugMent	USPHS	1,280	1 101			2,807
Veterans Admin Hosp+▲○	Ment	Vet	1,270	1,150			1 516
Wayside Hospital	N&M	Corp	30	13			294
London 2,263—Laurel							
Marymount Hospital	Gen	Church	35	16	10	201	987
Louisa, 2,023—Lawrence							
Riverview Hospital	Gen	Indiv	20	8	6	256	500
Louisville, 319,077—Jefferson							
Childrens Hospital▲○	Chil	NPAssn	70	40			1,288
Hazelwood Sanatorium▲	TB	State	160	101			345
Jewish Hospital▲	Gen	NPAssn	100	69	18	489	3 213
Kentucky Baptist Hosp★▲○	Gen	Church	285	234	36	2,124	10 440
Kentucky Treatment Center	Ven	State	120	80			3,146
Kosair Crippled Children Hospital+▲	Orth	NPAssn	100	67			1,801
Louisville General Hosp★+▲○	Gen	CyCo	881	207	35	1 883	9,402
Methodist Deaconess Hosp▲○	Gen	Church	65	60	12	501	2,410
Norton Memorial Infirmary★+▲○	Gen	NPAssn	250	108	30	1,203	7,806
Red Cross Hospital▲	Gen	NPAssn	65	38	10	208	1,979
St Anthony's Hospital★▲○	Gen	Church	219	157	31	1,445	7,395
St Joseph Infirmary★+▲○	Gen	Church	400	305	60	2,170	13,249
SS Mary and Elizabeth Hospital★▲○	Gen	Church	175	102	60	2,332	7 020
Stokes Sanitarium	N&M	Indiv	40	20			140
Veterans Admin Hospital+▲	Gen	Vet	1,000	872			9,117
Lynch, 10,000—Harlan							
Lynch Hospital	Gen	NPAssn	55	25	8	225	924
Madisonville, 8,209—Hopkins							
Hopkins County Hospital	Gen	NPAssn	70	36	16	660	2 081
Marion, 2 163—Crittenden							
Crittenden County Hospital	Gen	NPAssn	23	14	11	100	583
Martin, 957—Floyd							
Our Lady of the Way Hosp	Gen	Church	25	16	4	105	1,180
Mayfield 8,010—Graves							
Fuller Gilliam Hospital	Gen	Corp	35	20	8	272	1 447
Fuller Morgan Hospital and Clinic	ENT	Part	8			Estab	1950
Mayfield Hospital	Gen	NPAssn	40	20	10	300	2,400
Maysville, 6,572—Mason							
Hayswood Hospital	Gen	NPAssn	70	65	14	654	3 059
Middlesboro, 11,777—Bell							
Middleboro Hospital	Gen	Corp	85	50	12	330	3 342
Morganfield, 3 079—Union							
Our Lady of Mercy Hospital	Gen	Church	22	16	7	183	842
Mount Sterling, 4,782—Montgomery							
Mary Chiles Hospital	Gen	NPAssn	29	15	8	305	1,105
Murray, 8,773—Calloway							
Murray Hospital	Gen	NPAssn	60	32	20	465	1 930
Oneida, 300—Clay							
Oneida Maternity Hospital	Mat	State	25	16	22	677	987
Outwood, 50—Christian							
Veterans Admin Hospital▲	TB	Vet	318	302			830
Owensboro, 30 245—Daviess							
Our Lady of Mercy Hospital	Gen	Church	65	39	18	514	2 381
Owensboro Daviess County Hospital▲○	Gen	CyCo	150	101	22	957	5 490
Paducah, 33,765—McCracken							
Ewart Purcell Isolation Hosp	Unit of Riverside Hospital						
Illinois Central Hospital▲	Indus	NPAssn	90	50			2,298
Riverside Hospital▲	GenIso	City	114	80	25	961	4 741
Paintsville, 2,324—Johnson							
Paintsville Clinic Hospital	Gen	Indiv	30	8	5	146	639
Paintsville Hospital	Gen	Corp	85	39	15	617	2 992
Paris, 6 697—Bourbon							
Massie Memorial Hospital▲	Gen	City	50	25	8	317	1 320
Pewee Valley, 625—Oldham							
Pewee Valley Sanitarium and Hospital	Gen	NPAssn	60	33	8	60	761
Pikeville, 4,185—Pike							
Methodist Hospital	Gen	Church	82	65	16	946	4 713
Pineville, 3,882—Bell							
Pineville Community Hosp	Gen	Corp	77	70	11	376	3 278
Richmond, 7,335—Madison							
Gibson Hospital	Gen	Indiv	50	25	8	142	994
Irvine McDowell Memorial							
Trachoma Hospital▲	Trac	State	38	18			123
Pattie A Clay Infirmary	Gen	NPAssn	70	57	15	455	2,903

Key to symbols and abbreviations is on page 38

KENTUCKY—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Riverside 25—Warren							
Warren County Tuberculosis Hospital	TB	County	30	33			58
Russellville 8 983—Logan							
Logan County Hospital	Gen	County	25	18	6	207	920
Scottsville 1,707—Allen							
Graves Infirmary	Gen	Part	15	4	4	100	283
Shelbyville 4 392—Shelby							
Kings Daughters Hospital	Gen	NPAssn	45	25	12	309	1 306
Somerset 6 154—Pulaski							
Somerset City Hospital	Gen	City	70	44	20	674	3 152
Stanford 1 040—Lincoln							
Stanford Hospital	Gen	Indiv	14	12	7	206	661
Versailles 2,548—Woodford							
Woodford County Memorial Hospital	Gen	NPAssn	32	17	8	252	936
Waverly Hills 250—Jefferson							
Waverly Hills Tuberculosis Sanatorium+▲	TB	CyCo	400	356			343
West Prestonsburg 250—Floyd							
Prestonsburg General Hosp	Gen	Part	40	20	10	272	1 825
Winchester 8,594—Clark							
Clark County Hospital	Gen	NPAssn	50	40	8	231	1 460
Guerrant Memorial Hospital	Gen	NPAssn	25	11	4	40	348

Related Institutions

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Fleming 1 193—Letcher							
Fleming Hospital	Gen	Part	45	14	6	166	1 897
Frankfort 11 492—Franklin							
Kentucky Training Home	McDe	State	710	710			75
La Grange 1,334—Oldham							
State Reformatory Hospital	Inst	State	60	20			1,500
Louisville 319 077—Jefferson							
Kings Daughters Home for Incurables	Incur	NPAssn	100	95			20
Susan Speed Davis Home and Hospital	Mat	Church	30	4	90	82	91
West Liberty 573—Morgan							
West Liberty Hospital	Gen	Corp	25	10	8	161	970

LOUISIANA

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Abbeville 6 672—Vermilion							
Abbeville Clinic Hospital	Gen	Indiv	22	6	5	198	711
Palms Hospital	Gen	Part	40	25	9	490	2,551
Alexandria 27 066—Rapides							
Baptist Hospital*+▲	Gen	Church	210	115	40	831	8 101
Murrell Hospital Clinic	Gen	Indiv	35	18	6	104	1 725
Texada Clinic Hospital	Gen	Part	14	8	5	281	972
Veterans Admin Hospital▲	Gen	Vet	[illegible]	[illegible]			2 416
Bastrop 6 626—Morehouse							
Bastrop General Hospital	Gen	Church	90	35	6	372	2 200
Baton Rouge 34 719—East Baton Rouge							
Baton Rouge General Hosp ○	Gen	NPAssn	74	42	18	650	3 771
Our Lady of the Lake Sanitarium▲○	Gen	Church	230	191	58	2,501	16 549
Bogalusa 14 604—Washington							
Desporte Clinic Hospital	Gen	Indiv	16	7	6	15	704
Elizabeth Sullivan Memorial Hospital▲○	Gen	NPAssn	83	47	17	378	4 143
Breaux Bridge 1 608—St Martin							
St Paul Hospital	Gen	Indiv	16	8	6	215	436
Bunkie 3,575—Avoyelles							
Jones McConnell Clinic and Hospital	Gen	Part	10	6	4	72	418
Knoll Infirmary	Gen	Part	15	8	8	145	650
Carville, 250—Iberville							
U S Marine Hospital▲	Lepr	USPHS	450	394			76
Church Point 1 802—Acadia							
Church Point Sanitarium	Gen	Indiv	31	10	9	29	1 083
Clinton 998—East Feliciana							
Clinton Infirmary	Gen	Corp	20	12	5	105	743
Columbia 947—Caldwell							
Caldwell Hospital and Clinic	Gen	Indiv	15	6	6	158	710
Converse 314—Sabine							
Allen Sanitarium	Gen	Corp	15	9	6	80	825
Covington 4 123—St Tammany							
Fenwick Sanitarium	N & M	Corp	30	23			270
Crowley 9,523—Acadia							
Acadia Hospital	Gen	Part	12	8	5	125	562
Legion Memorial Hospital	Gen	NPAssn	30	11	10	365	1 101
Delhi, 1 192—Richland							
Delhi Clinic and Sanitarium	Gen	Part	18	10	12	[illegible]	570
De Quincy 3 252—Calcasieu							
De Quincy Hospital	Gen	Indiv	14	4	3	71	325
Douglas Clinic and Hospital	Gen	Indiv	12	2	5	215	[illegible]
De Ridder 3 750—Beauregard							
Frazar Clinic and Hospital	Gen	Indiv	28	14	4	376	913
Donaldsonville 3 889—Ascension							
Donaldsonville General Hosp	Gen	Indiv	12	2	6	70	213
Martins Sanitarium	ENT	Indiv	10	10			300
Ferriday 2 857—Concordia							
Ferriday Hospital	Gen	Part	28	14	5	200	976
Greenwell Springs 130—East Baton Rouge							
Greenwell Springs Tuberculosis Hospital	TB	State	168	141			189
Hammond 6 033—Tangipahoa							
Wiginton Infirmary	Gen	Part	30	11	10	22	1 075

LOUISIANA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Haynesville 2 418—Claiborne							
Haynesville Hospital▲	Gen	Corp	25	10	8	100	935
Houma 9 052—Terrebonne							
Ellender Memorial Hospital	Gen	Part	23	15	8	951	2,516
Independence 1,409—Tangipahoa							
Florida Parishes Charity Hospital	Gen	State	68	52	15	884	3 189
Jackson 5 384—East Feliciana							
East Louisiana State Hosp	Ment	State	4 587	4,518			1 122
Parker Hospital▲	Unit of East Louisiana State Hospital						
Jena 940—La Salle							
Jena Hospital	Gen	Indiv	15	6	6	60	600
Lafayette 19,210—Lafayette							
Des Ormeaux Clinic Hosp	Gen	Indiv	10	No data supplied			
Lafayette Charity Hospital▲	Gen	State	237	185	58	1,971	8 138
Lafayette Sanitarium	Gen	NPAssn	25	13	8	307	1 495
Our Lady of Lourdes Hosp	Gen	Church	50		10	Estab 1949	
St Ann Infirmary	Gen	Indiv	14	8	10	237	942
Lake Charles 21,207—Calcasieu							
St Patrick's Hospital▲	Gen	Church	175	92	30	1,573	[illegible]
Lecompte 1 311—Rapides							
Lecompte Sanitarium	Gen	Indiv	15	6	4	120	1 063
Leesville 2 829—Vernon							
War Memorial Hospital	Gen	NPAssn	51	8	6	175	652
Logansport 1,222—De Soto							
Sandifer Sanitarium	Gen	Indiv	10	4	6	93	455
Many 1 474—Sabine							
Frazer Sanitarium	Gen	Indiv	16	6	8	150	610
Marksville 1,811—Avoyelles							
Marksville Hospital	Gen	Part	20	9	4	156	722
Minden 6 677—Webster							
Minden Sanitarium	Gen	Corp	60	26	8	381	2 971
Monroe 28,309—Ouachita							
E A Conway Memorial Hosp	Gen	State	185	185	28	1 129	8,856
G B Cooley Sanatorium	TB	NPAssn	60	34			[illegible]
Monroe Charity Hospital	See E A Conway Memorial Hospital						
Riverside Sanitarium▲	Gen	Indiv	26	14	8	96	852
St Francis Sanitarium▲○	Gen	Church	145	124	20	1 086	[illegible]
Vaughn Wright Bendel Clinic Hospital▲	Gen	Part	36	No data supplied			
Newellton, 789—Tensas							
Legion Memorial Hospital	Gen	Indiv	30	12	8	100	600
New Iberia 13 747—Iberia							
Dauterive Hospital	Gen	Part	26	14	6	300	1 405
Iberia General Hospital	Gen	Part	15	8	6	192	762
New Orleans 494 537—Orleans							
Charity Hospital of Louisiana*+▲○	Gen	State	3 195	2 925	248	10 160	[illegible]
City Hospital for Mental Diseases	Ment	City	100	2			312
De Paul Sanitarium+▲○	N & M	Church	233	185			856
Eye Ear Nose and Throat Hospital+▲	ENT	NPAssn	83	51			4 891
Flint Goodridge Hospital of Dillard University▲○	Gen	NPAssn	98	52	30	359	2,235
Hotel Dieu Sisters Hospital*+▲○	Gen	Church	299	290	45	2,310	11,530
Illinois Central Hospital▲	Indus	NPAssn	60	33			801
John Dibert Memorial Tuberculosis Hospital	Unit of Charity Hospital						
Mercy Hospital Soniat Memorial*▲○	Gen	Church	125	78	32	1 171	4 788
Metairie Hospital	Gen	NPAssn	22	10	8	116	1 684
Montelepre Memorial Hosp	Gen	NPAssn	30	13	6	94	[illegible]
Ochsner Foundation Hosp +▲	Gen	NPAssn	216	148			5,344
Richard Milliken Memorial Hospital	Unit of Charity Hospital						
Sara Mayo Hospital▲	Gen	NPAssn	60	34	[illegible]	540	[illegible]
Southern Baptist Hosp *+▲○	Gen	Church	850	[illegible]	70	2,555	13 583
Station Hospital	Gen	Army	75	30			1,208
Touro Infirmary*+▲○	Gen	NPAssn	372	324	48	1 009	[illegible]
U S Marine Hospital*+▲	Gen	USPHS	436	375	12	340	[illegible]
Veterans Admin Hospital+▲	Gen	Vet	670	552			[illegible]
Oak Grove 1 654—West Carroll							
Everett Biggs Clinic Hosp	Gen	Part	17	9	7	156	780
Opelousas 8,980—St Landry							
St Landry Clinic Hospital	Gen	Corp	22	12	4	241	[illegible]
Paincourtville 800—Assumption							
St Elizabeth Hospital	Gen	Indiv	16		4	Estab 1949	
Pineville 4 297—Rapides							
Central Louisiana State Hospital	Ment	State	2,000	2 066			876
Fuqua Memorial Hospital▲	Unit of Central Louisiana State Hospital						
Huey P Long Hospital▲	Gen	State	[illegible]	190	32	1 880	[illegible]
Plaquemine 5 049—Iberville							
Plaquemine Sanitarium	Gen	NPAssn	35	24	9	[illegible]	1,530
Pleasant Hill 787—Sabine							
Prothro Clinic and Hosp	Gen	Indiv	14	10	5	82	891
Port Sulphur 500—Plaquemines							
Port Sulphur Hospital	Gen	NPAssn	14	8	7	170	[illegible]
Ruston 7 107—Lincoln							
Ruston Hospital	Gen	NPAssn	50	[illegible]	10	[illegible]	1 814
Ruston Tuberculosis Hosp	TB	State	154	115			160
St Martinville 3,501—St Martin							
St Martin Infirmary	Gen	Indiv	12	8	6	254	[illegible]
Shreveport 98 167—Caddo							
Gilmer Chest Hospital	TB	Indiv	[illegible]	23			163
Gowen Sanatorium	TB	Corp	55	46			[illegible]
Highland Sanitarium▲○	Gen	Part	102	[illegible]	[illegible]	[illegible]	2,519
North Louisiana Sanit ▲	Gen	Corp	120	65	17	486	4,352

Key to symbols and abbreviations is on page 38

LOUISIANA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Physicians and Surgeons Hospital	Gen	Corp	78	69			3,520
Pines Sanatorium	Unit of Shreveport Charity Hospital						
T E Schumpert Memorial Sanitarium▲○	Gen	Church	107	95	27	1,207	5,240
Shreveport Charity Hospital★+▲○	GenTb	State	650	592	52	3,123	15,430
Shriners Hospital for Crippled Children+▲	Orth	NPAssn	60	53			138
Station Hospital▲	Gen	USAF	118	45	10	304	2,300
Tri State Hospital▲○	Gen	NPAssn	120	110	20	874	5,220
Thibodaux, 5,851—La Fourche							
St Joseph Hospital	Gen	NPAssn	35	14	8	805	1,620
Urania, 800—La Salle							
Hardtner Memorial Clinic Hospital	Gen	Part	12	5	4	73	548
Ville Platte, 3,721—Evangeline							
Ardoin Sanitarium	Gen	Part	60	31	6	227	2,265
Winnfield, 4,512—Winn							
Winnfield General Hospital	Gen	Part	26	10	7	105	758
Winnsboro 2,834—Franklin							
Rogers Clinic and Hospital	Gen	Indiv	15	10	4	245	931
Winnsboro Sanitarium	Gen	Corp	27	15	6	97	1,093

Related Institutions

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Alexandria, 27,066—Rapides							
State Colony and Training School	McDe	State	930	321		.	82
Angola, 18—West Feliciana							
Angola General Hospital	Inst	State	79	75		..	1,294
Gueydan, 1,506—Vermilion							
Gueydan Memorial Hosp	Gen	NPAssn	10		2	Estab 1949	
Minden, 6,677—Webster							
Dr I A Phillips Hospital	Gen	Indiv	16	10	4	42	1,067
Morgan City, 6,969—St Mary							
Morgan City General Hosp	Gen	NPAssn	24	12	6	347	1,536
Napoleonville, 1,310—Assumption							
Napoleonville Hospital	Gen	Indiv	9	2	4	136	270
New Orleans, 494,537—Orleans							
Methodist Home Hospital	Mat	Church	62	20	6	61	63
New Orleans Convalescent Home	Conv	NPAssn	33	14			130
Winnfield, 4,512—Winn							
Martin Clinic and Hospital	Gen	Indiv	6	3	4	66	350

MAINE

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Augusta, 19,360—Kennebec							
Augusta General Hospital▲○	Gen	NPAssn	75	55	20	817	2,709
Augusta State Hospital	Ment	State	1,652	1,585			308
Bangor, 29,822—Penobscot							
Bangor Sanatorium	TB	NPAssn	30	17			28
Bangor State Hospital○	Ment	State	1,200	1,180			480
Eastern Maine General Hospital★+▲○	Gen	NPAssn	292	235	30	1,356	8,178
St Joseph Hospital	Gen	Church	30	23			1,077
Stinson Private Hospital	Gen	Indiv	26	17	12	268	836
Bar Harbor, 4,378—Hancock							
Mount Desert Island Hosp▲	Gen	NPAssn	58	23	10	222	1,385
Bath, 10,235—Sagadahoc							
Bath Memorial Hospital▲	Gen	NPAssn	70	46	20	283	1,727
Belfast, 5,540—Waldo							
Bradbury Memorial Hospital	Gen	NPAssn	16	11			238
Waldo County General Hospital▲	Gen	NPAssn	89	25	10	220	787
Biddeford, 19,700—York							
Trull Hospital	Gen	Corp	43	40	10	285	1,434
Webber Hospital	Gen	NPAssn	65	51	15	320	2,009
Blue Hill 1,343—Hancock							
Blue Hill Memorial Hospital	Gen	NPAssn	25	8	6	77	375
Boothbay Harbor, 2,121—Lincoln							
St Andrews Hospital▲	Gen	Corp	26	14	4	92	554
Brunswick, 8,658—Cumberland							
Brunswick Hospital	Gen	Indiv	46	22	10	225	1,109
Camden, 3,654—Knox							
Camden Community Hospital	Gen	NPAssn	18	7	6	120	205
Caribou 8,218—Aroostook							
Cary Memorial Hospital▲	Gen	City	40	17	10	408	1,012
Castine 662—Hancock							
Castine Community Hospital	Gen	NPAssn	12	10	6	155	596
Damariscotta, 844—Lincoln							
Miles Memorial Hospital	Gen	NPAssn	28	15	7	179	756
Dexter, 3,714—Penobscot							
Plummer Memorial Hospital	Gen	NPAssn	20	11	7	204	576
Dover Foxcroft, 4,015—Piscataquis							
Mayo Memorial Hospital	Gen	City	21	14	10	199	756
Eagle Lake, 1,891—Aroostook							
Northern Maine General Hospital	Gen	Church	40	35	7	147	1,035
Ellsworth, 3,911—Hancock							
Eastern Memorial Hospital	Gen	NPAssn	13	7	7	167	410
Fairfield 5,294—Somerset							
Central Maine Sanatorium▲	TB	State	205	167			167
Farmington 3,742—Franklin							
Franklin County Memorial Hospital▲	Gen	NPAssn	40	20	15	372	1,272
Fort Fairfield, 5,006—Aroostook							
Fort Fairfield Clinic Hosp	Gen	NPAssn	20	18	10	217	711

MAINE—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Gardiner, 6,044—Kennebec							
Gardiner General Hospital▲	Gen	NPAssn	54	27	16	375	1,338
Greenville Junction, 600—Piscataquis							
Charles A Dean Memorial Hospital	Gen	NPAssn	22	7	4	88	702
Greenwood Mountain, 250—Oxford							
Western Maine Sanatorium▲+	TB	State	113	96			187
Hartland 1,240—Somerset							
Scott Webb Memorial Hosp	Gen	NPAssn	50	40	12	200	1,428
Houlton, 7,771—Aroostook							
Aroostook General Hospital	Gen	NPAssn	36	26	10	217	1,387
Madigan Memorial Hospital○	Gen	Church	50	45	12	243	1,630
Island Falls, 1,370—Aroostook							
Emma V Milliken Memorial Hospital	Gen	NPAssn	25	17	12	167	748
Lewiston, 38,598—Androscoggin							
Central Maine General Hospital★+▲○	Gen	NPAssn	235	194	36	946	6,615
St Mary's General Hosp★▲○	Gen	Church	155	125	25	1,051	4,214
Old Town, 7,688—Penobscot							
Home Private Hospital	Gen	Indiv	15	7	10	210	406
Portland, 73,643—Cumberland							
Maine Eye and Ear Infirmary▲○	Gen	NPAssn	128	95	36	788	4,389
Maine General Hospital★+▲○	Gen	NPAssn	363	295	82	1,136	9,751
Mercy Hospital▲○	Gen	Church	156	127	30	955	4,788
Portland City Hospital	GenInst	City	131	115	12	62	926
U S Marine Hospital▲	Gen	USPHS	90	57			1,166
Presque Isle, 7,939—Aroostook							
Northern Maine Sanatorium	TB	State	120	86			102
Presque Isle General Hosp▲	Gen	NPAssn	55	40	10	445	2,003
Rockland, 8,899—Knox							
Knox County General Hosp▲	Gen	NPAssn	65	29	12	355	1,891
Rumford, 10,230—Oxford							
Rumford Community Hospital▲○	Gen	NPAssn	62	46	16	519	3,044
Sanford, 14,886—York							
Henrietta D Goodall Hosp▲	Gen	NPAssn	42	34	8	432	2,256
Skowhegan, 7,159—Somerset							
Redington Memorial Hospital	Gen	NPAssn	25	21	8	307	1,037
Togus, 2,850—Kennebec							
Veterans Admin Center▲	Ment	Vet	809	767			3,227
Van Buren, 5,380—Aroostook							
Hotel Dieu Hospital	Gen	Church	15	10	7	196	661
Waterville, 16,688—Kennebec							
Sisters' Hospital▲○	Gen	Church	102	61	16	719	3,500
Thayer Hospital▲	Gen	NPAssn	40	33	8	210	1,857
Westbrook, 11,087—Cumberland							
Westbrook Hospital	Gen	Corp	25	16	10	268	560

Related Institutions

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Bangor, 29,822—Penobscot							
Gay Private Hospital	N & M	Indiv	17	13			151
Pownal, 575—Cumberland							
Pownal State School	McDe	State	1,450	1,069		.	104
Union, 1,150—Knox							
Jones Sanitarium	N & M	Corp	30	19			13
Yarmouth, 2,214—Cumberland							
Gilbert Maternity and Convalescent Home	Mat	Indiv	17	15	3	6	6
York Village, 1,500—York							
York Hospital	Gen	NPAssn	22	12	6	143	672

MARYLAND

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Aberdeen Proving Ground,—Harford							
Station Hospital	Gen	Army	150	69	14	272	2,009
Annapolis, 13,069—Anne Arundel							
Anne Arundel General Hosp▲	Gen	NPAssn	71	61	16	575	2,954
U S Naval Hospital▲	Gen	Navy	150	89	12	336	2,664
Army Chemical Center,—Harford							
Station Hospital	Gen	Army	50	3			926
Baltimore, 859,100—Baltimore City							
Baltimore City Hospitals★+▲○	GenTb	City	1,944	1,406	80	2,078	6,782
Baltimore City Tuberculosis Hospital	Unit of Baltimore City Hospitals						
Baltimore Eye, Ear and Throat Charity Hospital+▲	ENT	NPAssn	66	61			3,850
Beck Diagnostic Clinic Hosp	Gen	Indiv	14	10			220
Bon Secours Hospital★+▲○	Gen	Church	150	122	85	1,155	4,905
Children's Hospital School+▲	Orth	NPAssn	120	95			481
Church Home and Hosp★+▲○	Gen	Church	166	125	28	1,022	5,192
Franklin Square Hosp★+▲○	Gen	NPAssn	208	108	32	1,480	6,023
Gundry Sanitarium	N & M	Indiv	45	32			16
Hospital for Women★+▲○	Gen	NPAssn	129	100	38	1,621	4,692
James Lawrence Kernan Hospital and Industrial School for Crippled Children+▲	Orth	NPAssn	85	65			251
Jenkins Memorial Hospital	Chr	NPAssn	92	92			118
Johns Hopkins Hospital★+▲○	Gen	NPAssn	981	873	67	2,275	18,783
Johnston Memorial Children's Hospital	Unit of Union Memorial Hospital						
Maryland General Hosp★+▲○	Gen	Church	232	189	26	1,050	6,212
Mercy Hospital★+▲○	Gen	Church	295	242	54	1,642	9,305
Presbyterian Eye, Ear, Nose and Throat Hospital	ENT	Church	34	4	6		1,202

Key to symbols and abbreviations is on page 38

MARYLAND—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Provident Hospital and Free Dispensary★+▲○	Gen	NPAssn	130	98	30	1,372	3 266
St Agnes Hospital★+▲○	Gen	Church	221	175	37	1 188	7,086
St Joseph s Hospital★+▲○	Gen	Church	250	188	37	1,346	7 276
Seton Institute+○	N & M	Church	310	240			409
Sinai Hospital★+▲○	Gen	NPAssn	307	264	65	2,375	10 103
South Baltimore General Hospital★+▲○	Gen	NPAssn	156	136	24	932	5 155
Union Memorial Hosp ★+▲○	Gen	NPAssn	342	268	36	1 305	8,801
U S Marine Hospital★+▲	Gen	USPHS	400	360			7,248
University Hospital★+▲○	Gen	State	435	401	70	2 024	11 072
West Baltimore General Hospital★▲+○	Gen	NPAssn	187	140	35	1 942	6,252
Bethesda 30 000—Montgomery							
Suburban Hospital+▲	Gen	NPAssn	102	71	22	888	4 111
U S Naval Hospital★+▲	Gen	Navy	1 350	1 083	40	1,543	15 990
Cambridge 10 102—Dorchester							
Cambridge-Maryland Hosp ▲	Gen	NPAssn	70	26	18	370	1,500
Eastern Shore State Hospital	Ment	State	509	491			147
Cascade 350—Washington							
Ritchie State Hospital	Chr	State	176	135			108
Catonsville 7 647—Baltimore							
Haarlem Lodge	N & M	Corp	53	36			96
Spring Grove State Hosp +	Ment	State	2 341	2,355			580
Chestertown, 2 760—Kent							
Kent and Upper Queen Anne's General Hospital	Gen	NPAssn	30	17	12	242	859
Cheverly (Hyattsville P O) 990—Prince Georges							
Prince George s General Hospital▲	Gen	County	102	87	18	769	4 625
Crisfield 3,905—Somerset							
Edward W McCready Memorial Hospital	Gen	NPAssn	38	26	14	119	552
Crownsville 30—Anne Arundel							
Crownsville State Hospital	Ment	State	1,814	1 805			554
Hospital for Colored Feebleminded Children	Unit of Crownsville State Hospital						
Cumberland, 39 483—Allegany							
Allegany Hospital of the Sisters of Charity▲○	Gen	Church	126	94	20	625	4 067
Memorial Hospital▲○	Gen	CyCo	218	187	50	980	5,269
Easton 4 528—Talbot							
Memorial Hospital▲○	Gen	NPAssn	108	69	20	500	3,337
Elkton 8,518—Cecil							
Union Hospital of Cecil County	Gen	NPAssn	75	36	25	430	1 694
Fort George G Meade —Anne Arundel							
Station Hospital▲	Gen	Army	125	81	10	504	2,884
Fort Howard 1 200—Baltimore							
Veterans Admin Hospital+▲	Gen	Vet	488	401			3,987
Frederick 15 802—Frederick							
Emergency Hospital	Gen	County	50	24	20	284	540
Frederick Memorial Hosp ▲○	Gen	NPAssn	125	88	24	966	4 144
Frostburg 7 659—Allegany							
Miners Hospital	Gen	State	51	33	14	305	1 675
Glen Dale 205—Prince Georges							
Tuberculosis Sanatorium	See Washington, D C						
Hagerstown 32,491—Washington							
Children s Hospital	Chil	NPAssn	14	7			92
Washington County Hospital★▲○	Gen	NPAssn	158	142	48	1,396	6 652
Havre de Grace 4 967—Harford							
Harford Memorial Hospital▲	Gen	NPAssn	72	55	31	629	3,575
Henryton 30—Carroll							
Henryton State Hospital	TB	State	388	341			447
Ijamsville 200—Frederick							
Riggs Cottage Sanitarium	N & M	Indiv	26	19			38
La Plata 488—Charles							
Physicians Memorial Hosp	Gen	NPAssn	34	19	16	235	1 071
Laurel 2,823—Prince Georges							
District Training School	See Washington, D C						
Laurel Sanitarium	N & M	Indiv	80	75			339
Warren Hospital	Gen	Part	16	10	8	100	426
Leonardtown 668—St Marys							
St Mary s Hospital	Gen	NPAssn	45	25	1	358	1,350
Mount Wilson 225—Baltimore							
Mount Wilson State Hospital	TB	State	200	171			173
Olney 100—Montgomery							
Montgomery County General Hospital	Gen	NPAssn	40	35	14	355	1 610
Patuxent River,—St Marys							
U S Naval Air Station Dispensary	Gen	Navy	248	40	24	400	2,580
Perry Point 80—Cecil							
Veterans Admin Hosp +▲	Ment	Vet	1 830	1 852			2,903
Prince Frederick 300—Calvert							
Calvert County Hospital	Gen	Corp	32	17	8	252	953
Reisterstown 2 000—Baltimore							
Mount Pleasant	TB	NPAssn	60	55			117
Relay 2 010—Baltimore							
Relay Sanitarium	N & M	Part	35	23			230
Riverdale 2,330—Prince Georges							
Eugene Leland Memorial Hospital	Gen	Corp	56	41	12	403	2 057
Rockville 2 047—Montgomery							
Chestnut Lodge Sanitarium+▲○	N & M	Indiv	80	63			64
Salisbury 13 313—Wicomico							
Peninsula General Hosp ★▲○	Gen	NPAssn	177	140	30	1,209	6 873
Pine Bluff State Hospital	TB	State	59	56			61
Silver Spring 28 000—Montgomery							
Cedarcroft Sanitarium	N & M	Part	50	32			630

MARYLAND—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
State Sanatorium, 200—Frederick							
Victor Cullen State Hosp	TB	State	336	319			220
Sykesville, 806—Carroll							
Springfield State Hospital+	Ment	State	3 100	3 041			615
Takoma Park 8 938—Montgomery							
Walter Reed General Hospital	See Washington D C						
Washington Sanitarium and Hospital	See Washington D C						
Towson 2 074—Baltimore							
Aigburth Manor Hospital	Nerv	Indiv	25	21			47
Hospital for Consumptives (Eudowood Sanatorium)	TB	NPAssn	180	164			206
Sheppard and Enoch Pratt Hospital+▲○	N & M	NPAssn	285	186			236
Western Port 3,565—Allegany							
Reeves Clinic Hospital	ENT	Part	9	2			158

Related Institutions

Baltimore 859 100—Baltimore City							
Baltimore City Jail Hospital	Inst	City	24	3			440
Happy Hills Convalescent Home for Children	Conv	NPAssn	74	55			157
Home for Incurables	Incur	NPAssn	167	145			45
Levindale Hebrew Home and Infirmary	Inst	NPAssn	180	170			64
Maryland Penitentiary Hosp	Inst	State	30	22			704
Ellicott City 1,216—Howard							
Pinel Clinic Hospital	N&M	Corp	60	30			156
Jessups 400—Anne Arundel							
Maryland House of Correction Hospital	Inst	State	25	17			317
Owings Mills 130—Baltimore							
Rosewood State Training School	MeDe	State	1,260	1,250			91
Rockville 2 047—Montgomery							
Christ Child Farm for Convalescent Children	Conv	NPAssn	31	27			110

MASSACHUSETTS

Hospitals and Sanatoriums

Acushnet (New Bedford P O) —Bristol							
Acushnet Hospital	Gen	NPAssn	51	30	17	679	1 675
Adams 12 608—Berkshire							
W B Plunkett Memorial Hospital▲	Gen	City	50	22	15	301	1,917
Amesbury 10 862—Essex							
Amesbury Hospital▲	Gen	City	35	29	10	207	2 457
Arlington 40 013—Middlesex							
Ring Sanatorium and Hosp	N & M	Corp	60	41			425
Symmes Arlington Hosp ▲	Gen	NPAssn	58	50	12	400	2 100
Attleboro 22 071—Bristol							
Bristol County Tuberculosis Hospital	TB	County	60	56			117
Sturdy Memorial Hospital▲○	Gen	NPAssn	125	90	42	1,074	4 059
Ayer 3 572—Middlesex							
Community Memorial Hosp ▲	Gen	NPAssn	27	16	10	230	815
Bedford 3 807—Middlesex							
Veterans Admin Hospital+▲○	Ment	Vet	1 671	1,871			440
Beverly, 25,537—Essex							
Beverly Hospital★+▲○	Gen	NPAssn	166	142	41	982	5 209
Boston 770 816—Suffolk							
Adams House (Adams Nervine Hospital)	Nerv	NPAssn	35	30			55
Audubon Hospital	Gen	Corp	38	27	8	214	1 187
Beth Israel Hospital★+▲○	Gen	NPAssn	199	181			5,909
Boston City Hospital★+▲○	Gen	City	2,378	1 818	150	2 047	30 172
Boston Floating Hosp +▲○	Chil	NPAssn	56	39			1 765
Boston Lying In Hosp +▲○	Mat	NPAssn	134	70	125	2 157	3 035
Boston Psychopathic Hospital+▲○	Ment	State	122	109			1 255
Boston Sanatorium+	TB	City	560	495			534
Boston State Hospital+▲○	Ment	State	3 095	2 947			1,364
Carney Hospital★+▲○	Gen	Church	228	172	34	1 120	6 187
Channing Home	TB	NPAssn	29	28			35
Children s Hospital★+▲○	Chil	NPAssn	345	224			9 409
Faulkner Hospital★+▲○	Gen	NPAssn	144	103	25	815	3 768
Glenside Hospital	N & M	Corp	132	116			123
Hahnemann Hospital	Gen	NPAssn	27	12			349
Harley Private Hospital	*Gen*	*Corp*	*55*	*41*	*22*	*757*	*2,501*
Haynes Memorial Hospital○	Unit of Massachusetts Memorial Hospitals						
House of the Good Samaritan▲○	Card	NPAssn	79	56			194
Huntington Clinic	Maintained by Massachusetts General Hospital						
Infants Hospital	Unit of Children s Hospital						
Jewish Memorial Hospital	*GenChr*	*NPAssn*	*120*	*118*			*1 5*
Joseph H Pratt Diagnostic Hospital	See New England Center Hospital						
Long Island Hospital	GenChr	City	528	477			947
Massachusetts Eye and Ear Infirmary+▲○	ENT	NPAssn	191	135			6 610
Massachusetts General Hospital★+▲○	Gen	NPAssn	596	348			7 634
Massachusetts General Hospital Baker Memorial▲	Gen	NPAssn	344	230	42	446	7 112
Massachusetts General Hospital Phillips House▲	Gen	NPAssn	94	--	22	162	2,25

Key to symbols and abbreviations is on page 38

MASSACHUSETTS—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Massachusetts Memorial Hospitals★+▲○	Gen	NPAssn	437	207	45	812	8,430
Massachusetts Women's Hospital▲	Gen	NPAssn	60	59	22	391	2,587
New England Baptist Hospital▲○	Gen	NPAssn	227	187			6 076
New England Center Hosp +▲	Gen	NPAssn	156	80			4,946
New England Deaconess Hospital+▲○	Gen	Church	300	275			7,700
New England Hospital for Women and Children★+▲○	Gen	NPAssn	103	100	75	1,764	4 224
Palmer Memorial Hospital+	Unit of New England Deaconess Hospital						
Peter Bent Brigham Hospital★+▲○	Gen	NPAssn	250	189			4,921
Robert Breck Brigham Hosp ▲	Gen	NPAssn	105	60			849
Robert Dawson Evans Memorial+	Unit of Massachusetts Memorial Hospitals						
St Elizabeth's Hosp ★+▲○	Gen	Church	256	203	60	1,987	9,461
St Margaret's Hospital▲○	Gen	Church	141	124	71	1,941	4,718
St Mary's Lying In Hosp ▲	Mat	Church	16	14	16	142	172
U S Marine Hospital★+▲	Gen	USPHS	340	254			5,166
Veterans Admin Hospital+▲	Gen	Vet	182	141			5 252
Wolfson Nose and Throat Hospital	ENT	Indiv	9	3			217
Bourne, 200—Barnstable							
Barnstable County Sanat ▲	TbIso	County	70	60			240
Bridgewater, 8,902—Plymouth							
Bridgewater State Hospital	See State Farm Mass						
Brockton, 62 343—Plymouth							
Brockton Hospital★▲○	Gen	NPAssn	150	106	26	[illegible]	[illegible]
Goddard Hospital▲	Gen	Corp	65	50	15	581	2 623
Moore Hospital	Gen	Indiv	22	14	7	214	627
Brookline, 49 786—Norfolk							
Allerton Hospital▲	Gen	NPAssn	60	45	20	419	1 999
Bellevue Hospital	Gen	NPAssn	42	28	10	468	1 909
Booth Memorial Hospital+▲	Mat	Church	69	40	4	1,128	2 405
Bournewood Hospital	N & M	Indiv	69	51			841
Brooks Hospital▲	Gen	NPAssn	53	6			1 914
Free Hospital for Women+▲	Gyn	NPAssn	91	69			3 004
Health Department Hospital▲	TB	City	55	35			22
Parkway Hospital	Unit of Free Hospital for Women						
Cambridge, 110 879—Middlesex							
Cambridge City Hosp ★+▲○	Gen	City	270	176	100	1 427	5 822
Cambridge Sanatorium	TB	City	100	91			265
Chester Hospital	Gen	Corp	35	22	12	62	1 288
Mount Auburn Hospital★+▲○	Gen	NPAssn	222	188	44	1 645	7,050
Sancta Maria Hospital	Gen	Church	65	25	20	92	1,010
Canton 6 381—Norfolk							
Massachusetts Hosp School+	Orth	State	170	130			72
Chelsea, 41 259—Suffolk							
Captain John Adams Hosp ▲	Gen	State	195	189			2,075
Chelsea Memorial Hospital▲○	Gen	NPAssn	98	70	25	870	2 848
Lawrence F Quigley Memorial Hospital	Gen	State	300			Estab 1949	
U S Naval Hospital★+▲	Gen	Navy	829	625	29	745	7 949
Chicopee Falls, 16 941—Hampden							
Station Hospital▲	Gen	USAF	125	52			1,579
Clinton, 12 440—Worcester							
Clinton Hospital▲○	Gen	NPAssn	63	58	20	417	1 947
Concord, 7,972—Middlesex							
Emerson Hospital▲	Gen	NPAssn	37	4	18	468	1 692
Danvers, 14 179—Essex							
Danvers State Hospital	See Hathorne						
Hunt Memorial Hospital	Gen	City	16	9	6	51	826
Everett, 46 784—Middlesex							
Whidden Memorial Hosp ▲○	Gen	NPAssn	114	85	20	1 050	3,876
Fall River 115 428—Bristol							
Fall River General Hospital	Gen Tb	City	200	148			1 459
St Anne's Hospital+▲○	Gen	Church	100	86	12	1,103	3,622
Truesdale Hospital★+▲○	Gen	NPAssn	170	127	30	741	4 457
Union Hospital▲○	Gen	NPAssn	165	150	42	1,071	5 231
Fitchburg, 41 824—Worcester							
Burbank Hospital★▲○	Gen	City	250	206	37	1,059	5 807
Lucy Helen Memorial Hosp	Unit of Burbank Hospital						
Foxboro, 6,[illegible]—Norfolk							
Foxboro State Hospital+▲	Ment	State	1,284	1,217			356
Framingham, 23,214—Middlesex							
Framingham Union Hosp ▲○	Gen	NPAssn	101	76	30	866	4 163
Veterans Admin Hospital+▲	Gen	Vet	1,100	855			6,927
Gardner 20 206—Worcester							
Gardner State Hospital▲	Ment	State	1,427	1,398			280
Henry Heywood Memorial Hospital▲○	Gen	NPAssn	107	88	20	861	4 010
Georgetown, 1,800—Essex							
Baldpate	N & M	Corp	42	36			241
Gloucester, 24,046—Essex							
Addison Gilbert Hospital▲	Gen	NPAssn	85	65	15	535	2,031
Great Barrington, 5,824—Berkshire							
Fairview Hospital▲	Gen	NPAssn	56	34	14	322	1 370
Greenfield, 15 672—Franklin							
Franklin County Public Hospital▲○	Gen	NPAssn	102	87	25	806	3 519
Hanson, 2,570—Plymouth							
Plymouth County Hospital▲	TB	County	140	57			65
Hathorne, 146—Essex							
Danvers State Hospital+▲○	Ment	State	2,531	2,447			894
Haverhill, 46,752—Essex							
Benson Hospital	Gen	Corp	26	13	16	120	1,047
Haverhill Municipal Hospital (Hale)▲	Gen	City	161	128	30	874	6,151
Haydenville, 1,000—Hampshire							
Hampshire County Sanat	See Northampton						

MASSACHUSETTS—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Holden, 3,924—Worcester							
Holden District Hospital▲	Gen	NPAssn	29	24	6	224	1 124
Holyoke, 53,750—Hampden							
Holyoke Hospital★+▲○	Gen	NPAssn	140	106	27	566	3 740
Providence Hospital▲○	Gen	Church	165	141	40	1,504	5 824
Hudson, 8,042—Middlesex							
Hudson Hospital	Gen	NPAssn	10	14	6	133	888
Hyannis, 1,800—Barnstable							
Cape Cod Hospital▲	Gen	NPAssn	65	52	15	594	2,357
Ipswich, 6,348—Essex							
Benjamin Stickney Cable Memorial Hospital▲	Gen	NPAssn	25	16	7	190	775
Lawrence, 84 323—Essex							
Bessie Burke Memorial Hosp	Gen	City	90	70	4	46	1,150
Clover Hill Hospital	Gen	Corp	50	38	22	853	2,249
Lawrence General Hosp +▲○	Gen	NPAssn	180	140	48	1,277	6,054
Leominster, 22 226—Worcester							
Leominster Hospital▲○	Gen	NPAssn	102	64	23	542	2 910
Lowell, 101,389—Middlesex							
Lowell General Hospital▲○	Gen	NPAssn	183	124	30	788	4,088
St John's Hospital★▲○	Gen	Church	189	148	35	850	5,491
St Joseph's Hospital★▲○	Gen	Church	135	114	33	1,034	4,843
Shaw Hospital	Gen	Indiv	20	7	12	320	668
Ludlow, 8,181—Hampden							
Ludlow Hospital	Gen	NPAssn	33	20	14	362	1,578
Lynn, 98,123—Essex							
Lynn Hospital★+▲○	Gen	NPAssn	242	198	74	1 661	7,819
Union Hospital	Gen	NPAssn	54	43	14	608	2,518
Malden, 58,010—Middlesex							
Malden Hospital+▲○	Gen	NPAssn	220	145	40	1 149	6,131
Marblehead, 10,856—Essex							
Mary A Alley Emergency Hospital	Gen	City	18	9	10	88	414
Marlboro, 15,154—Middlesex							
Marlborough Hospital▲	Gen	NPAssn	61	40	15	482	1 903
Medfield, 4,184—Norfolk							
Medfield State Hospital+▲	Ment	State	1 543	1,606			350
Medford, 63,083—Middlesex							
Lawrence Memorial Hosp ▲○	Gen	NPAssn	76	62	34	1,004	3 039
Melrose, 25 333—Middlesex							
Melrose Hospital▲○	Gen	NPAssn	100	74	25	779	3 639
New England Sanitarium and Hospital▲○	Gen	Church	145	120	10	616	3,786
Methuen, 21,880—Essex							
Mary F McGowan Memorial Hospital	Gen	Corp	32	27	11	548	1,376
Middleboro, 9 032—Plymouth							
Lakeville State Sanatorium▲	TB	State	304	131			149
St Luke's Hospital▲	Gen	NPAssn	32	20	15	280	911
Middleton, 2 148—Essex							
Essex County Tuberculosis Hospital▲	TB	County	360	244			240
Milford, 15 388—Worcester							
Milford Hospital▲○	Gen	NPAssn	61	43	15	637	2 562
Milton 18 708—Norfolk							
Milton Hospital and Convalescent Home▲	Gen	NPAssn	23	13	6	74	605
Montague City, 635—Franklin							
Farren Memorial Hospital▲	Gen	Church	74	58	8	265	2 716
Nantucket, 3 401—Nantucket							
Nantucket Cottage Hospital	Gen	NPAssn	33	16	5	77	635
Natick, 13,851—Middlesex							
Leonard Morse Hospital▲	Gen	NPAssn	58	39	17	487	1,909
Needham, 12 445—Norfolk							
Glover Memorial Hospital	Gen	City	20	16	10	148	733
New Bedford, 110 341—Bristol							
St Luke's Hospital★▲○	Gen	NPAssn	298	236	45	1 949	9 817
Sassaquin Sanatorium▲	TB	NPAssn	104	60			103
Sol e Mar Orthopedic Hospital for Children▲	Orth	NPAssn	40	25			49
Union Hospital	Gen	Corp	36	20			958
Newburyport, 13 916—Essex							
Anna Jaques Hospital▲	Gen	NPAssn	53	46	10	325	1,711
Worcester Memorial Hosp ▲	Gen	NPAssn	20	12	5	155	494
Newton, 69 873—Middlesex							
New England Peabody Home for Crippled Children▲	Orth	NPAssn	90	70			20
Newton Lower Falls,—Middlesex							
Newton Wellesley Hosp ★+▲○	Gen	NPAssn	240	171	55	1 442	6 225
Norfolk, 2,294—Norfolk							
State Prison Colony Hosp ▲	Inst	State	75	44			594
North Adams, 22 213—Berkshire							
North Adams Hospital▲	Gen	NPAssn	78	51	19	557	2,260
Northampton, 24,794—Hampshire							
Cooley Dickinson Hosp +▲○	Gen	NPAssn	165	122	25	1,115	5,546
Hampshire County Sanat	TB	County	65	55			76
Northampton State Hosp ▲○	Ment	State	1,788	2 290			798
Veterans Admin Hospital▲	Ment	Vet	1,095	1,094			295
North Grafton, 1,150—Worcester							
Grafton State Hospital▲	Ment	State	1 564	1,789			415
North Wilmington, 472—Middlesex							
North Reading State Sanat ▲	TB	State	240	115			107
Norwood, 15,383—Norfolk							
Norwood Hospital▲	Gen	NPAssn	122	103	30	929	4,335
Oak Bluffs, 1 584—Dukes							
Martha's Vineyard Hospital▲	Gen	NPAssn	35	18	10	109	651
Palmer, 9,149—Hampden							
Monson State Hospital+▲	Epil	State	1,639	1,467			100
Wing Memorial Hospital▲	Gen	NPAssn	29	26	12	234	2,294
Peabody, 21,711—Essex							
Josiah B Thomas Hospital	Gen	City	69	47	15	203	1,840

Key to symbols and abbreviations is on page 38

MASSACHUSETTS—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Pittsfield 49 684—Berkshire							
Hillcrest Hospital	Gen	NPAssn	45	35	10	328	1 497
Pittsfield General Hosp ★▲○	Gen	NPAssn	189	133	31	646	4,832
St Luke's Hospital▲○	Gen	Church	150	112	33	864	4,345
Plymouth 18 100—Plymouth							
Jordan Hospital▲	Gen	NPAssn	68	41	15	417	1,977
Quincy 75,810—Norfolk							
Quincy City Hospital★+▲○	Gen	City	265	203	60	1,5[illegible]3	8 493
Rutland 2 181—Worcester							
Jewish Tuberculosis Sanat	TB	NPAssn	25	21			52
Rutland State Sanatorium+▲	TB	State	330	315			209
Rutland Heights 800—Worcester							
Veterans Admin Hospital+▲○	TB	Vet	618	529			749
Salem 41,213—Essex							
North Shore Babies Hosp ▲	Chil	NPAssn	35	18	13		565
Salem Hospital★+▲○	Gen	NPAssn	235	203	57	1 457	7,322
Somerville 102 177—Middlesex							
Somerville Hospital▲○	Gen	NPAssn	120	85	30	953	4 001
South Braintree —Norfolk							
Norfolk County Hospital▲	TB	County	154	130			97
Southbridge 16 825—Worcester							
Harrington Memorial Hosp ▲	Gen	NPAssn	40	25	18	504	1 520
Springfield 149,554—Hampden							
Health Department Hospital	TbIso	City	100	47			260
Mercy Hospital★▲○	Gen	Church	840	274	60	2 110	10 106
Shriners Hospital for Crippled Children+▲○	Orth	NPAssn	60	51			276
Springfield Hospital★+▲○	Gen	NPAssn	281	250	4	3	7 803
Wesson Maternity Hosp ▲○	Mat	NPAssn	70	63	86	2 867	3 014
Wesson Memorial Hospital▲	Gen	NPAssn	112	93			4,242
State Farm 200—Plymouth							
Bridgewater State Hospital	Ment	State	1 074	968			101
Stockbridge 1,816—Berkshire							
Austen Riggs Foundation+	N&M	NPAssn	41	35			145
Taunton, 37 395—Bristol							
Morton Hospital▲○	Gen	NPAssn	90	61	44	777	3 900
Taunton State Hospital▲○	Ment	State	1 962	1 967			730
Tewksbury 6,261—Middlesex							
Tewksbury State Hospital and Infirmary▲	GenChr	State	2 675	1 911	40	113	1,588
Vineyard Haven 1 500—Dukes							
U S Marine Hospital	Gen	USPHS	80	10			217
Walpole 7 443—Norfolk							
Pondville Hospital+▲	Cancer	State	60	47			884
Waltham 40 020—Middlesex							
Metropolitan State Hosp +▲○	Ment	State	1,590	[illegible] 021			875
Middlesex County Sanat +▲	TB	County	350	292			299
Murphy General Hospital	Gen	Army	855	424	0	749	5 718
Waltham Hospital★▲○	GenIso	NPAssn	174	11	37	1 023	4 077
Ware 7,557—Hampshire							
Mary Lane Hospital▲	Gen	NPAssn	45	30	18	404	1,361
Wareham 6 364—Plymouth							
Tobey Hospital▲	Gen	NPAssn	40	32	10	550	1 621
Waverley, 6 000—Middlesex							
McLean Hospital+▲○	N&M	NPAssn	232	190			277
Webster 13,186—Worcester							
Webster District Hospital▲	Gen	NPAssn	83	21	14	365	848
Wellesley 15 127—Norfolk							
Channing Sanitarium	N&M	Corp	80	24			27
Wiswall Sanatorium	N&M	Indiv	80	25			20
Westboro 6 403—Worcester							
Westboro State Hospital+▲	Ment	State	1 711	1 600			468
Westfield 18 793—Hampden							
Noble Hospital▲	Gen	Corp	75	45	15	[illegible]	2 421
Westfield State Sanat +▲	TbCancer	State	194	151			533
Westwood 3,370—Norfolk							
Westwood Lodge	N&M	Corp	21	18			101
Weymouth 23,868—Norfolk							
South Shore Hospital▲	Gen	NPAssn	117	93	40	1,2[illegible]9	4 292
Whitinsville 7 000—Worcester							
Whitinsville Hospital	Gen	NPAssn	25	12	13	310	1 910
Winchendon 6 575—Worcester							
Winchendon Hospital	Gen	NPAssn	30	24	10	1[illegible]	996
Winchester 15 081—Middlesex							
Winchester Hospital▲	Gen	NPAssn	81	62	30	1 010	2 741
Winthrop 16,768—Suffolk							
Winthrop Community Hosp ▲	Gen	NPAssn	64	55	31	742	2 095
Woburn 19,751—Middlesex							
Charles Choate Memorial Hospital▲	Gen	NPAssn	51	39	16	480	1 707
Worcester 193 694—Worcester							
Belmont Hospital+▲⊖	TbIso	City	250	114			813
Fairlawn Hospital▲	Gen	NPAssn	52	41	16	[illegible]	1 644
Harvard Private Hospital	Gen	Corp	25	9	5	49	343
Memorial Hospital★+▲○	Gen	NPAssn	209	172	34	1 107	8 106
St Vincent Hospital★+▲○	Gen	Church	240	235	35	940	7 4[illegible]
Worcester City Hospital★+▲○	Gen	City	480	417	60	1 603	11 913
Worcester County Sanat ▲	TB	County	130	97			[illegible]
Worcester Hahnemann Hospital▲○	Gen	NPAssn	111	100	52	1 088	4,3[illegible]
Worcester State Hosp +▲○	Ment	State	2,930	2 850			8[illegible]6

Related Institutions

Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Andover 11,122—Essex							
Isham Infirmary	Inst	NPAssn	50	5			1 018
Belchertown 8 503—Hampshire							
Belchertown State School▲	MeDe	State	1 323	1 176			131
Boston 770,816—Suffolk							
Bay State Hospital	Gen	NPAssn	30	19	5	[illegible]	1 460
Boston Home for Incurables	Incur	NPAssn	45	45			4
Florence Crittenton Maternity Home and Hospital	Mat	NPAssn	52	28	47	70	96
Hastings House	Mat	NPAssn	30	18	18	57	72
Prendergast Preventorium	TB	NPAssn	100	40			213
Washingtonian Hospital	Drug	NPAssn	45	32			783
Cambridge, 110 879—Middlesex							
Holy Ghost Hospital for Incurables	Incur	Church	260	255			245
Concord 7,972—Middlesex							
Valleyhead Hospital	N&M	Corp	62	35			325
Framingham 23,214—Middlesex							
Woodside Cottages	N&M	Corp	20	18			81
Greenfield 15 672—Franklin							
Greenfield Isolation Hosp	Iso	City	20	2			138
Haverhill 46 752—Essex							
Glynn Memorial Hospital	Chr	City	80	76			122
Lynn 98 123—Essex							
Lynn Health Department Hospital	Iso	City	50	12	25		210
Pittsfield 49 684—Berkshire							
Pittsfield Anti Tuberculosis Hospital	TB	NPAssn	12	10			11
Salem 41 213—Essex							
Health Department Hospital for Communicable Diseases	Iso	City	16	3			63
Springfield 149,554—Hampden							
Buscall Nursing Home	Conv	Indiv	25	10			0
Springfield Municipal Hosp	Inst	City	120	116			554
Waltham 40 020—Middlesex							
Walter E Fernald State School▲	MeDe	State	1,540	1 540			172
Wellesley 15,127—Norfolk							
Simpson Infirmary of Wellesley College	Inst	NPAssn	29	16			1 024
Wellesley Hills—Norfolk							
Hospital and Convalescent Home for Children	Orth	NPAssn	65	40			341
West Concord 3,500—Middlesex							
Massachusetts Reformatory Hospital	Inst	State	50	2			878
Williamstown 4 294—Berkshire							
Williams College Infirmary	Inst	NPAssn	19	4			25
Wrentham, 4 074—Norfolk							
Wrentham State School	MeDe	State	1,902	1 [illegible]			219

MICHIGAN

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Adrian 14 230—Lenawee							
Emma L Bixby Hospital▲	Gen	City	77	47	24	967	3 0[illegible]3
Albion 8,345—Calhoun							
James W Sheldon Memorial Hospital▲	Gen	City	45	30	14	401	1 [illegible]87
Allegan 4,526—Allegan							
Allegan Health Center▲	Gen	NPAssn	40	27	13	482	1 703
Alma 7 202—Gratiot							
Michigan Masonic Home and Hospital	Inst	NPAssn	100	85			101
R B Smith Memorial Hosp	Gen	NPAssn	31	21	11	548	1 928
Wilcox Miller Hospital	Gen	Part	35	16	10	250	051
Almont 924—Lapeer							
Bishop Hospital	Gen	Indiv	14	No data supplied			
Alpena 12,808—Alpena							
Alpena General Hospital	Gen	City	84	[illegible]	21	801	4,517
Ann Arbor 29 815—Washtenaw							
Mercywood Neuropsychiatric Hospital○	N&M	Church	50	41			671
Michigan Rapid Treatment Center	Ven	State	100	56	7		2 006
Neuropsychiatric Institute	Unit of University Hospital						
St Joseph's Mercy Hosp ★+▲○	Gen	Church	250	191	64	1 473	8,282
University Hospital★+▲○	Gen	State	979	707	[illegible]	[illegible]	17 041
Bad Axe 2 674—Huron							
Hubbard Memorial Hospital	Gen	NPAssn	36	31	12	365	1,357
Battle Creek 43 453—Calhoun							
American Legion Hospital+	TB	NPAssn	275	235			[illegible]8
Arthur S Kimball Sanat	TB	County	73	[illegible]			8[illegible]
Battle Creek Sanitarium▲	Gen	NPAssn	307	1[illegible]6			3 707
Community Hospital★▲	Gen	NPAssn	100	[illegible]	[illegible]	1,2[illegible]3	4 970
Leila Y Post Montgomery Hospital★+▲○	Gen	Church	175	104	25	865	7 0[illegible]1
Percy Jones General Hosp ▲	Gen	Army	1,200	[illegible]	15	2[illegible]0	6 525
Bay City 47,956—Bay							
Bay City General Hospital▲	Gen	City	125	111	[illegible]	1 [illegible]	[illegible]87
Bay City Samaritan Hosp	Gen	NPAssn	45	[illegible]	3	[illegible]	1 [illegible]
Mercy Hospital▲○	Gen	Church	[illegible]	14[illegible]	[illegible]	979	6,912
Benton Harbor 16 668—Berrien							
Mercy Hospital▲○	Gen	NPAssn	100	8[illegible]	[illegible]6	1,300	4 [illegible]
Berrien Center 241—Berrien							
Berrien County Hospital	Gen	County	60	34	5	58	6[illegible]
Big Rapids 4,987—Mecosta							
Community Hospital	Gen	City	35	[illegible]	1[illegible]	309	1 [illegible]
Bloomfield Hills 1 281—Oakland							
Cranbrook Infirmary	Inst	NPAssn	[illegible]	3			120
Brighton 1,353—Livingston							
Mellus Memorial Hospital	Gen	NPAssn	13	[illegible]	6	[illegible]2	[illegible]
Cadillac 9 855—Wexford							
Mercy Hospital▲	Gen	Church	1[illegible]5	60	[illegible]	[illegible]4	[illegible]
Calumet 1 460—Houghton							
Calumet and Hecla Hosp	Indus	NPAssn	24	1			563

Key to symbols and abbreviations is on page 38

MICHIGAN—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Caro, 3,070—Tuscola							
Caro Community Hospital	Gen	City	16	9	10	236	801
Caro State Hospital for Epileptics	Epil	State	1,006	1,409			183
Cass City, 1,369—Tuscola							
Pleasant Home Hospital	Gen	Indiv	15	13	5	147	742
Charlevoix, 2,299—Charlevoix							
Charlevoix Hospital	Gen	NPAssn	30	18	8	213	1,074
Charlotte, 5,544—Eaton							
Hayes Green Beach County Memorial Hospital	Gen	County	24	13	10	260	911
Cheboygan, 5,673—Cheboygan							
Community Memorial Hosp	Gen	NPAssn	60	35	12	342	2,242
Clare, 1,844—Clare							
Clare Hospital	Gen	NPAssn	25	9	6	70	302
Coldwater, 7,343—Branch							
Community Health Center▲	Gen	County	70	50	24	588	2,696
Crystal Falls, 2,611—Iron							
Crystal Falls Municipal Hospital	Gen	City	17	6	5	116	770
Dearborn, 63,584—Wayne							
Dearborn Diagnostic Hosp	Gen	NPAssn	65	11	20	31	492
Dearborn General Hospital	Gen	Indiv	15	7	14	278	680
Dearborn Medical Centre Hospital	Gen	NPAssn	59	43	26	1,408	2,734
St Joseph's Retreat+○	N&M	Church	325	28			1,0[illegible]
Veterans Admin Hosp +▲	Gen	Vet	1,008	843			7,903
Detroit, 1,623,452—Wayne							
Alexander Blain Hospital+▲	Gen	NPAssn	80	51	5	125	2,480
Bethesda Hospital▲	TB	NPAssn	83	58			153
Charles Godwin Jennings Hospital*+▲	Gen	NPAssn	82	60	25	91	3,048
Children's Hospital+▲○	Chil	NPAssn	200	140			5,011
City of Detroit Receiving Hospital*+▲	Gen	City	502	591		40	19,323
City of Detroit Receiving Hospital (Redford Branch)▲	Gen	City	46	34		5	1,268
Delray General Hospital▲	Gen	NPAssn	72	46	22	580	2,813
Detroit Medical Hospital▲	N&M	NPAssn	102	81			1,434
Detroit Memorial Hospital*+	Gen	NPAssn	294		40 Reorganized		
Detroit Tuberculosis Sanat ▲	TB	NPAssn	200	183			703
Dorothy Rogers General Hospital	Gen	NPAssn	50	20	6	88	1,062
East Side General Hospital▲	Gen	NPAssn	70	61	45	1,341	4,410
Edyth K Thomas Memorial Hospital▲	Gen	NPAssn	125	No data supplied			
Evangelical Deaconess Hospital*+▲○	Gen	Church	185	123	40	1,709	7,606
Fairview Sanatorium	TB	NPAssn	67	66			145
Florence Crittenton Hosp +▲	Gen	NPAssn	150	89	75	2,037	5,308
Grace Hospital*+▲○	Gen	NPAssn	641	520	110	5,339	24,243
Grace Hospital, Northwestern Branch▲	Unit of Grace Hospital						
Harper Hospital*+▲○	Gen	NPAssn	547	423	70	2,843	21,371
Henry Ford Hospital*+▲○	Gen	NPAssn	600	558	56	2,014	18,320
Herman Kiefer Hosp +▲○	TbMatIso	City	1,200	970	68	2,081	5,740
Holy Cross Hospital▲	Gen	Church	104	82	50	2,678	5,802
Kretzschmar Diagnostic Clinic and Hospital	Gen	NPAssn	12	6	4	55	283
Lincoln Hospital▲	Gen	NPAssn	65	44	22	772	2,540
Lynn Hospital	Gen	NPAssn	40	24	8	215	1,445
Martin Place Hospital	Gen	NPAssn	20	5	6	14	158
McGregor Center Hospital for Rehabilitation and Health Education	Conv	NPAssn	34	25			260
Mercy General Hospital	Gen	Indiv	32	28	8	27	246
Mercy Hall Hospital	Cancer	NPAssn	70	43			348
Michigan Mutual Industrial Hospital▲	Indus	NPAssn	37	21			1,057
Miriam Memorial Hospital	Unit of Grace Hospital						
Mt Carmel Mercy Hosp *+▲○	Gen	Church	400	303	125	4,728	17,090
North Detroit General Hosp	Gen	NPAssn	44	20	15	520	2,326
Parkside Hospital▲	Gen	NPAssn	54	47	12	417	1,509
Providence Hospital*+▲○	Gen	Church	323	270	100	4,028	16,924
St Joseph's Mercy Hosp *+▲○	Gen	Church	171	141	60	1,910	7,154
Saratoga General Hospital	Gen	NPAssn	110	73	85	1,252	5,403
Trinity Hospital▲	Gen	NPAssn	100	79	20	340	2,285
Trumbull General Hospital	Gen	NPAssn	43	26	13	582	1,862
U S Marine Hospital*+▲	Gen	USPHS	248	216			2,803
Warren Diagnostic Hospital	Gen	Indiv	18	10	7	81	520
Wayne Diagnostic Hospital	Gen	NPAssn	67	60	34	1,808	3,054
William Booth Memorial Hospital	Mat	Church	35	26	50	1,321	1,900
Woman's Hospital*+▲○	Gen	NPAssn	240	173	110	4,178	9,756
Dowagiac, 5,007—Cass							
Lee Memorial Hospital	Gen	Church	[illegible]	22	13	367	1,613
Durand, 3,127—Shiawassee							
Durand Hospital	Gen	NPAssn	16	11	6	205	830
East Grand Rapids, 4,899—Kent							
Burleson Hospital	Proct	Corp	20	20			556
Eaton Rapids, 3,060—Eaton							
Stimson Community Hosp	Gen	NPAssn	10	7	8	184	550
Edmore, 825—Montcalm							
Edmore Hospital	Gen	NPAssn	18	6	5	88	296
Eloise, 1,700—Wayne							
Wayne County General Hospital and Infirmary +▲	Ment	County	3,905	4,208			820
Wayne County General Hospital and Infirmary *+▲	GenChr	County	3,480	2,801	4	18	7,172
William J Seymour Hosp *+▲	Unit of Wayne County General Hospital and Infirmary						
Escanaba, 14,830—Delta							
St Francis Hospital	Gen	Church	125	50	25	433	2,238

MICHIGAN—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Flint, 151,543—Genesee							
Hurley Hospital*+▲○	Gen	City	415	345	60	2,206	16,721
St Joseph Hospital*▲	Gen	Church	230	210	45	2,807	11,106
Women's Hospital▲	Gen	NPAssn	40	31	25	1,131	2,000
Fort Custer,—Calhoun							
Veterans Admin Hospital+▲	Ment	Vet	2,137	2,041			724
Fremont, 2,520—Newaygo							
Gerber Memorial Hospital	Gen	City	38	23	12	476	1,618
Gaylord, 2,055—Otsego							
Northern Michigan Tuberculosis Sanatorium▲	TB	State	128	124			118
Gladwin, 1,600—Gladwin							
Gladwin Hospital	Gen	Part	16	11	7	238	609
Goodrich, 470—Genesee							
Goodrich General Hospital▲	Gen	NPAssn	47	25	15	209	1,878
Grand Haven, 8,799—Ottawa							
Grand Haven Municipal Hosp	Gen	City	44	33	18	405	1,594
Grand Rapids, 164,292—Kent							
Blodgett Memorial Hosp *+▲○	Gen	NPAssn	179	153	30	1,397	6,440
Butterworth Hospital*+▲○	Gen	NPAssn	270	288	60	2,616	14,587
Christian Psychopathic Hospital and Pine Crest Sanitarium	N&M	NPAssn	400	393			383
City General Hospital	Conv	City	32	26			255
Ferguson Droste-Ferguson Rectal Clinic and Hospital	Proct	Corp	87	48			1,564
Michigan Veterans' Facility Hospital	Inst	State	270	200			1,488
St Mary's Hospital*+▲○	Gen	Church	250	207	62	2,800	9,543
Sunshine Sanatorium	TB	County	138	127			118
Grayling, 2,124—Crawford							
Mercy Hospital▲	Gen	Church	50	43	8	319	1,579
Greenville, 5,321—Montcalm							
United Memorial Hospital	Gen	NPAssn	32	21	11	493	1,471
Grosse Point, 6,179—Wayne							
Bon Secours Hospital	Gen	Church	34	30			1,329
Cottage Hospital▲	Gen	NPAssn	56	30	25	774	2,719
Hamtramck, 49,839—Wayne							
St Francis Hospital▲○	Gen	Church	110	81	36	1,051	4,693
Hancock, 5,554—Houghton							
St Joseph's Hospital▲○	Gen	Church	84	65	20	585	3,231
Hart, 1,022—Oceana							
Oceana Hospital	Gen	NPAssn	22	20	7	256	2,375
Hartford, 1,094—Van Buren							
Van Buren County Hospital	Gen	County	40	30	3	24	301
Hastings, 5,175—Barry							
Pennock Hospital▲	Gen	NPAssn	35	32	8	424	1,023
Hazel Park, 16,665—Oakland							
Helene Meinke Hospital	Gen	Indiv	12	8	8	181	665
Highland Park, 50,810—Wayne							
Highland Park General Hospital*+▲○	GenIso	City	255	223	45	1,842	9,312
Hillsdale, 6,381—Hillsdale							
Hillsdale Community Health Center▲	Gen	City	75	50	20	473	2,752
Holland, 14,616—Ottawa							
Holland City Hospital	Gen	City	72	65	20	829	3,002
Houghton, 3,693—Houghton							
Copper Country Sanatorium	TB	County	66	53			76
Howell, 3,748—Livingston							
McPherson Memorial Hosp	Gen	City	30	26	12	312	412
Michigan State Sanatorium+▲	TB	State	421	376			260
Hudson, 2,426—Lenawee							
Thorn Memorial Hospital	Gen	City	19	10	10	274	1,444
Ionia, 6,392—Ionia							
Ionia County Memorial Hospital	Gen	City	21	18	9		1,270
Ionia State Hospital+	Ment	State	1,077	1,062			195
Iron Mountain, 11,080—Dickinson							
Iron Mountain General Hospital	Gen	NPAssn	20	26	8	395	1,077
Ironwood, 13,369—Gogebic							
Grand View Hospital▲	GenTb	County	115	90	10	244	2,304
Newport Hospital	Gen	NPAssn	12	8	5	110	407
Ishpeming, 9,491—Marquette							
Ishpeming Hospital▲	Gen	NPAssn	56	48	18	326	1,517
Jackson, 49,656—Jackson							
W A Foote Memorial Hospital*▲○	Gen	City	150	125	30	1,301	6,745
Jackson County Sanatorium○	TB	County	76	75			60
Mercy Hospital▲○	Gen	Church	125	92	30	1,183	6,838
Kalamazoo, 54,097—Kalamazoo							
Borgess Hospital+▲○	Gen	Church	249	178	35	1,720	7,492
Bronson Methodist Hospital*+▲○	Gen	Church	140	122	28	1,371	5,996
Fairmount Hospital▲	TbIso	County	93	50			208
Kalamazoo State Hospital+○	Ment	State	3,380	3,350			558
Lakeview, 824—Montcalm							
Kelsey Hospital	Gen	Part	20	11	5	274	917
Lansing, 78,753—Ingham							
Edward W Sparrow Hospital*+▲○	Gen	NPAssn	231	177	53	2,385	9,446
Ingham Sanatorium+▲	TB	County	186	128			431
St Lawrence Hosp *▲○	Gen	Church	275	184	55	2,241	8,815
Lapeer, 5,365—Lapeer							
Lapeer City Hospital	Gen	Part	18	6	4	130	751
Lapeer State Home and Training School▲	MeDe	State	4,410	4,108	3	6	364
Laurium, 3,929—Houghton							
Calumet Public Hospital	Gen	NPAssn	40	25	12	321	1,291
Ludington, 8,701—Mason							
Paulina Stearns Hospital	Gen	NPAssn	46	35	10	452	2,061

Key to symbols and abbreviations is on page 38

MICHIGAN—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Manistee 8 694—Manistee							
Mercy Hospital and Sanit ▲	Gen	Church	48	31	10	325	1,252
Manistique 5 399—Schoolcraft							
Shaw General Hospital	Gen	Indiv	20	18	10	235	526
Marquette 15 928—Marquette							
Morgan Heights Sanat +▲	TB	County	90	86			94
St Luke s Hospital▲○	Gen	NPAssn	142	125	12	425	4 132
St Mary s Hospital▲	Gen	Church	65	47	16	329	1,732
Marshall 5 253—Calhoun							
Oaklawn Hospital	Gen	NPAssn	21	17	12	281	790
Mason 2,867—Ingham							
Mason General Hospital	Gen	NPAssn	20	11	6	170	538
Menominee 10,230—Menominee							
St Joseph s Hospital▲	Gen	Church	72	54	16	458	2,810
Midland 10,329—Midland							
Midland Hospital▲	Gen	NPAssn	83	70	20	857	4,111
Milan 2 340—Washtenaw							
Federal Correctional Institution	Inst	USPHS	34	14			546
Monroe 18 478—Monroe							
Mercy Hospital▲	Gen	Church	66	51	27	904	3,592
Monroe Hospital	Gen	Church	85	46	15	582	3 105
Morenci 1 845—Lenawee							
Blanchard Hospital	Gen	NPAssn	14	8	6	84	502
Mount Clemens 14 389—Macomb							
St Joseph Hospital▲○	Gen	Church	128	103	43	1 670	6 722
Station Hospital	Gen	USAF	50	17			1 141
Mount Pleasant 8 413—Isabella							
Central Michigan Community Hospital▲	Gen	NPAssn	50	52	16	606	3 116
Munising 4 409—Alger							
Munising Hospital	Gen	NPAssn	28	11	5	116	562
Muskegon 47 697—Muskegon							
Hackley Hospital+▲○	Gen	NPAssn	182	160	34	1 874	7 044
Mercy Hospital▲○	Gen	Church	110	102	33	1 105	5 015
Muskegon County Sanat ▲	TB	County	75	72			79
Newberry 2,732—Luce							
Newberry State Hospital	Ment	State	1 747	1 653			696
Niles 11 328—Berrien							
Pawating Hospital	Gen	NPAssn	72	55	20	755	3 484
Northville 3 032—Wayne							
East Lawn Sanatorium	TB	Corp	94	93			133
Sessions Hospital	Gen	NPAssn	45	27	12	302	1 703
Wm H Maybury Sanatorium (Detroit Municipal Tuberculosis Sanatorium)+▲	TB	City	844	723			755
Norway 3 728—Dickinson							
Penn Hospital	Gen	City	16	13	7	244	791
Omer 295—Arenac							
Omer Hospital	Gen	Indiv	16	7	5	73	376
Ontonagon 2,290—Ontonagon							
Ontonagon Memorial Hosp	Gen	City	32	10	7	111	1,236
Oshtemo 235—Kalamazoo							
Pine Crest State Sanatorium	TB	State	100	86			87
Owosso 14 424—Shiawassee							
Memorial Hospital▲	Gen	NPAssn	80	63	20	957	4 665
Paw Paw 1 910—Van Buren							
Lake View Community Hosp	Gen	City	22	15	7	211	1 123
Petoskey 6 019—Emmet							
Little Traverse Hospital▲	Gen	NPAssn	103	90	10	397	3 885
Lockwood General Hospital	Gen	NPAssn	57	34	10	248	1 870
Pigeon 949—Huron							
Scheurer Hospital	Gen	NPAssn	20	13	10	188	676
Plainwell 2 424—Allegan							
Wm Crispe Hospital	Gen	City	25	16	11	311	913
Pontiac 66 626—Oakland							
Oakland County Contagious Hospital	VenIso	County	85	35			555
Oakland County Tuberculosis Sanatorium+▲	TB	County	240	205			231
Pontiac General Hospital★+▲	Gen	City	192	170	45	2 452	9,522
Pontiac State Hospital+	Ment	State	2 048	2,433			761
St Joseph s Mercy Hosp ★▲○	Gen	Church	257	101	77	2 070	9 843
Port Huron 32,759—St Clair							
Port Huron Hospital▲	GenIso	NPAssn	120	104	24	1 418	6,354
Powers 258—Menominee							
Pinecrest Sanatorium▲	TB	Counties	145	123			181
Reed City, 1 845—Osceola							
Reed City Hospital	Gen	City	85	30	10	335	1,338
River Rouge 17 008—Wayne							
Sidney A Sumby Memorial Hospital	Gen	NPAssn	35	20	10	207	839
Rochester 3 759—Oakland							
Haven Sanitarium	N&M	Corp	43	37			324
Royal Oak 25 087—Oakland							
Oakland Center Hospital	Gen	NPAssn	12	6			252
Royal Oak General Hospital	Gen	City	24	21	12	489	1,840
Saginaw 82 794—Saginaw							
Saginaw County Hospital▲	TbIso	County	180	178			468
Saginaw County Infirmary Hospital	Gen	County	43	40			271
Saginaw General Hosp ★+▲○	Gen	NPAssn	206	190	50	1 599	10 765
St Luke s Hospital▲	Gen	Church	66	65	18	477	3 093
St Mary s Hospital★▲○	Gen	Church	172	142	35	1,270	7 490
St Clair 3 471—St Clair							
St Clair Community Hosp	Gen	City	20	12	8	422	1 025
St Johns 4 422—Clinton							
Clinton Memorial Hospital▲	Gen	NPAssn	75	50	20	584	2 535
St Joseph 8 963—Berrien							
St Joseph Michigan Hosp ▲	Gen	NPAssn	32	23	12	355	1,577
Sault Ste Marie 15 847—Chippewa							
Chippewa County War Memorial Hospital	Gen	County	130	106	22	809	4 565
Sault Ste Marie State Hosp	Ment	State	558	539			16
Shelby 1,367—Oceana							
Shelby Community Hospital	Gen	City	20	4	10	480	510
South Haven 4 745—Van Buren							
South Haven Hospital▲	Gen	City	40	35	12	367	1,945
Stambaugh 2,081—Iron							
General Hospital Company of Iron River District	Gen	NPAssn	25	14	12	305	955
Sturgis 7,214—St Joseph							
Sturgis Memorial Hospital▲	Gen	City	40	26	10	630	1 729
Tecumseh 2,921—Lenawee							
Tecumseh Hospital	Gen	City	34	24	16	421	1,355
Three Rivers 6 710—St Joseph							
Three Rivers Hospital▲	Gen	City	34	27	8	385	1,891
Traverse City, 14 455—Grand Traverse							
Boardman Valley Hospital	Gen	County	18	12	4	58	310
James Decker Munson Hosp ▲	Gen	NPAssn	132	125	20	728	4,534
Traverse City State Hosp +▲○	Ment	State	2 861	2,806			748
Van Dyke 7 000—Macomb							
Memorial Hospital	Gen	Part	28	15	10	120	1 094
Wakefield 3,591—Gogebic							
Divine Infant of Prague Hospital	Gen	Church	23	14	7	184	700
Watervliet 1 103—Berrien							
Community Hospital	Gen	NPAssn	27	15	6	207	1 007
Wayne 4,223—Wayne							
Wayne Clinic Hospital	Gen	Indiv	15	8	6	116	557
Wayne General Hospital	Gen	NPAssn	20	13	7	141	1 024
West Branch 1 962—Ogemaw							
Tolfree Memorial Hospital	Gen	City	19	4	7	300	1 613
Wyandotte 30 618—Wayne							
Wyandotte General Hosp ▲	Gen	City	167	136	37	2 073	10,580
Ypsilanti 12 121—Washtenaw							
Beyer Memorial Hosiptal▲	Gen	NPAssn	155	100	44	1 733	6 771
Leland Sanatorium▲	TB	NPAssn	125	78			111
Ypsilanti State Hospital+▲○	Ment	State	4 000	3 647			1,217
Zeeland 3 007—Ottawa							
Thomas G Huizinga Memorial Hospital	Gen	NPAssn	15	8	8	354	679
Related Institutions							
Ann Arbor 29 815—Washtenaw							
Ann Arbor School	MeDe	Indiv	50	50			20
Coldwater 7 343—Branch							
Coldwater State Home and Training School	MeDe	State	1 772	1 435		4	168
Detroit 1,623 452—Wayne							
Barnett Hospital and Clinic	ENT	NPAssn	14	4			374
Central Hospital	Gen	Indiv	31	18			383
Doctors Hospital	Conv	Indiv	35	25			207
General Hospital and Clinic	TB	Indiv	47	46			127
Good Samaritan Hospital	Conv	NPAssn	29	24			30
Michigan Memorial Hospital	Conv	Corp	52	39			470
Douglas, 421—Allegan							
Community Hospital	Gen	NPAssn	15	7	5	80	350
East Grand Rapids 4 899—Kent							
O'Keefe Sanitarium	Conv	Corp	32	30			33
Farmington, 1 510—Oakland							
Children s Hospital Convalescent Home	Conv	NPAssn	100	60			261
Ferndale 22,523—Oakland							
Ardmore Hospital	Gen	NPAssn	22	13	12	344	1 167
Flint 151,543—Genesee							
Genesee County Hospital and Infirmary	InstGen	County	100	85	10		363
Hynd s Convalescent Hosp	Conv	Part	66	64			37
Kith Haven	Conv	Part	23	21			14
Grand Rapids 164,292—Kent							
Kent County Receiving Hosp	Ment	County	25	17			552
Mary Free Bed Guild Convalescent Home and Orthopedic Center	Orth	NPAssn	90	84			625
Salvation Army Evangeline Booth Home and Hospital.	Mat	Church	19	6	11	157	167
Jackson 49 656—Jackson							
Florence Crittenton Home and Hospital	Mat	NPAssn	22	15	12	35	54
Jackson County Isolation Hospital	Iso	County	45	9			
Southern Michigan Prison Hospital	Inst	State	200	145			2 516
Lansing 78 753—Ingham							
Boys Vocational School Hospital	Inst	State	32	9			1 122
Ingham County Convalescent Hospital	ConvIso	County	50	40			309
Marquette 15 928—Marquette							
Marquette Branch Prison Hospital	Inst	State	24	17			163
Mount Clemens 14,389—Macomb							
Sigma Gamma Hospital School○	Orth	NPAssn	50	32			159
Mount Pleasant 8 413—Isabella							
Mount Pleasant State Home and Training School	MeDe	State	[illegible]	[illegible]			
Northville 3 032—Wayne							
Wayne County Training School	MeDe	County	835	704			171
Plainwell 2,424—Allegan							
Del Vista Sanitarium	N&M	Corp	35	27			293
Plymouth 5,360—Wayne							
Plymouth Hospital	Gen	Part	7	1	3	22	80

Key to symbols and abbreviations is on page 38

MICHIGAN—Continued

Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Pontiac, 66,626—Oakland							
Oakland County Infirmary	Inst	County	210	206			1,098
Romulus, 755—Wayne							
Romulus Hospital	Gen	NPAssn	18	3	6	28	124
Stockbridge, 852—Ingham							
Rowe Memorial Hospital	Gen	Indiv	10	5	5	148	358
Trenton, 5,284—Wayne							
Trenton Hospital	Mat	Indiv	17	8	17	278	291
Vicksburg, 1,774—Kalamazoo							
Franklin Memorial Hospital	Gen	City	13	6	6	126	509

MINNESOTA

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Ada, 1,935—Norman							
Ada Municipal Hospital	Gen	City	34	22	8	223	781
Adrian, 1,066—Nobles							
Adrian Hospital	Gen	NPAssn	17	14	6	177	693
Ah-gwah-ching, 15—Cass							
Minnesota State Sanatorium▲	TB	State	305	231			342
Albert Lea, 12,200—Freeborn							
Naeve Hospital○	Gen	NPAssn	122	75	45	1,075	3,893
Alexandria, 6,051—Douglas							
Our Lady of Mercy Hospital▲	Gen	Church	33	26	10	4	1,372
St Luke's Hospital	Gen	Church	35	23	12	218	1,165
Anoka, 6,426—Anoka							
Anoka Hospital	Gen	NPAssn	16	7	8	152	478
Anoka State Hospital▲	Ment	State	1,100	1,253			97
Appleton, 1,877—Swift							
Kaufman Hospital	Gen	Indiv	25	9	5	93	489
Austin, 18,307—Mower							
St Olaf Lutheran Hospital	Gen	NPAssn	105	77	20	903	4,276
Battle Lake, 625—Otter Tail							
Otter Tail County Sanatorium	TB	County	48	20			19
Bemidji, 9,427—Beltrami							
Lutheran Hospital▲○	Gen	NPAssn	75	56	18	545	2,837
Benson, 2,729—Swift							
Swift County Hospital	Gen	NPAssn	27	19	10	267	1,184
Bertha, 578—Todd							
Thiel Hospital	Gen	NPAssn	17	14	8	250	850
Bigfork, 382—Itasca							
Northern Itasca Hospital	Gen	City	11	7	4	56	406
Biwabik, 1,304—St Louis							
Biwabik Hospital	Gen	Indiv	10	7	7	106	529
Braham, 575—Isanti							
Braham Community Hosp	Gen	NPAssn	24	15	7	173	970
Brainerd, 12,071—Crow Wing							
St Joseph's Hospital▲	Gen	Church	75	67	18	717	3,615
Breckenridge, 2,745—Wilkin							
St Francis Hospital▲○	Gen	Church	99	72	18	650	4,020
Buffalo, 1,605—Wright							
Catlin Hospital	Gen	*Part*	*10*	4	4	55	117
Buhl, 1,699—St Louis							
Range Hospital	Chr	County	46	45			61
Caledonia, 1,985—Houston							
Caledonia Community Hosp	Gen	NPAssn	18	13	9	133	443
Cambridge, 1,592—Isanti							
Cambridge State School and Hospital	Epil	State	1,108	1,070			43
Cannon Falls, 1,544—Goodhue							
Mineral Springs Sanatorium	TB	Counties	107	106			196
Cass Lake, 1,901—Cass							
Cass Lake Indian Hospital	Gen	IA	36	15	4	120	959
Chisholm, 7,487—St Louis							
Mesaba Clinic Hospital	Gen	Corp	18	14	5	121	643
Cloquet, 7,304—Carlton							
Fond du Lac Indian Hosp	Gen	IA	22	12	4	61	409
Raiter Hospital▲	Gen	NPAssn	34	21	12	153	1,365
Cokato, 1,175—Wright							
Cokato Hospital	Gen	Indiv	10	11	6	72	572
Crookston, 7,161—Polk							
Bethesda Hospital▲	Gen	Church	54	48	12	266	2,422
St Vincent's Hospital▲	Gen	Church	75	75	15	370	2,573
Sunnyrest Sanatorium	TB	Counties	60	35			48
Crosby, 2,051—Crow Wing							
Miners' Hospital	Gen	Church	25	24	8	211	1,210
Dawson, 1,616—Lac qui Parle							
Dawson Hospital	Gen	NPAssn	35	22	7	128	778
Deer River, 987—Itasca							
Deer River Community Hosp	Gen	Corp	13	9	4	95	778
Deerwood, 570—Crow Wing							
Deerwood Sanatorium	TB	Counties	28	15			25
Detroit Lakes, 5,015—Becker							
St Mary's *Hospital*▲	Gen	Church	*60*	*60*	*15*	478	2,855
Duluth, 101,065—St Louis							
Birches Sanitarium	N&M	Corp	15	14			119
Miller Memorial Hospital▲	Gen	City	78	76			1,077
St Luke's Hospital★▲○	Gen	NPAssn	276	206	33	1,746	12,702
St Mary's Hospital★+▲○	Gen	Church	255	208	35	1,487	10,476
Ely, 5,970—St Louis							
Ely Winton Memorial Hosp	Gen	NPAssn	40		6	Estab	1949
Shipman Hospital	Gen	Part	18	10	5	69	523
Eveleth, 6,887—St Louis							
More Hospital and Clinic▲	*Gen*	NPAssn	26	18	10	114	706
Fairmont, 6,988—Martin							
Fairmont Community Hosp	Gen	NPAssn	50	46	11	656	2,302
Faribault, 14,527—Rice							
Minnesota School and Colony▲	MeDe	State	2,010	2,894	10	7	165
St Lucas Deaconess Hosp○	Gen	Church	65	44	17	605	2,105

MINNESOTA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Farmington, 1,580—Dakota							
Sanford Hospital	Gen	NPAssn	30	15	4	126	555
Fergus Falls, 10,848—Otter Tail							
Fergus Falls State Hosp▲○	Ment	State	2,000	1,872			774
George B Wright Memorial Hospital▲	Gen	NPAssn	52	42	10	273	1,650
St Luke's Hospital▲	Gen	NPAssn	70	52	15	394	1,990
Fosston, 1,271—Polk							
Fosston Community Hospital	Gen	PNAssn	14	12	6	185	624
Glencoe, 2,387—McLeod							
Glencoe Municipal Hospital	Gen	City	64	42	15	341	2,063
Glenwood, 2,564—Pope							
Glenwood Community Hosp▲	Gen	*City*	*26*	20	10	220	1,020
Graceville, 1,020—Big Stone							
Holy Trinity *Hospital*▲	Gen	Church	28	18	10	204	1,552
Grand Rapids, 4,875—Itasca							
Itasca County Hospital▲○	Gen	County	67	51	20	677	3,042
Granite Falls, 2,388—Yellow Medicine							
Granite Falls Municipal Hosp	Gen	City	40	20	12	233	935
Riverside Sanatorium	TB	Counties	48	36			29
Hallock, 1,353—Kittson							
Kittson War Veterans' Memorial Hospital	Gen	NPAssn	34	18	6	166	909
Hastings, 5,662—Dakota							
Hastings State Hospital	Ment	State	1,098	1,014			186
Hendricks, 740—Lincoln							
Hendricks Community Hosp	Gen	NPAssn	34	30	8	162	2,144
Heron Lake, 852—Jackson							
Heron Lake Hospital	Gen	NPAssn	17	11	3	89	681
Hibbing, 16,385—St Louis							
Hibbing General Hospital▲○	Gen	Church	132	118	20	612	5,008
Hutchinson, 3,887—McLeod							
Hutchinson Community Hospital	Gen	NPAssn	45	34	12	430	1,774
International Falls, 5,625—Koochiching							
International Falls Memorial Hospital	Gen	NPAssn	62	33	14	609	1,913
Jackson, 2,840—Jackson							
Halloran Hospital	Gen	Church	20	12	5	150	624
Lake City, 3,204—Wabasha							
Lake City Municipal Hosp	Gen	City	32	26	8	164	954
Lake Park, 654—Becker							
Sand Beach Sanatorium	TB	Counties	42	26			33
Litchfield, 3,920—Meeker							
Litchfield Hospital	Gen	NPAssn	47	38	12	341	1,725
Little Falls, 6,047—Morrison							
St Gabriel's Hospital▲○	Gen	Church	96	76	17	710	4,531
Littlefork, 608—Koochiching							
Littlefork Hospital	Gen	NPAssn	22	17	8	177	917
Long Prairie, 2,311—Todd							
Long Prairie Hospital	Gen	NPAssn	20	11	8	166	717
Luverne, 3,114—Rock							
Luverne Municipal Hospital	Gen	City	15	4	10	218	679
Madison, 2,312—Lac qui Parle							
Madison Hospital	Gen	NPAssn	23	14	5	101	575
Mahnomen, 1,420—Mahnomen							
St Anthony's *Hospital*	Gen	Church	20	11	6	139	689
Mankato, 15,654—*Blue Earth*							
Immanuel Hospital▲	Gen	Church	60	53	14	439	1,976
St Joseph's Hospital▲	Gen	Church	116	80	26	695	3,849
Marshall, 4,590—Lyon							
Anna Marie Memorial Hosp	Gen	Indiv	16	12	8	270	616
Marshall Hospital	Gen	NPAssn	25	15	5	165	644
Melrose, 2,015—Stearns							
Melrose Hospital	Gen	Corp	23	15	8	312	1,341
Milaca, 1,627—*Mille Lacs*							
Memorial Hospital	Gen	NPAssn	15	10	6	159	623
Minneapolis, 492,370—Hennepin							
Abbott Hospital★+▲○	Gen	Church	126	122	24	978	6,908
Asbury Hospital★+▲○	Gen	Church	150	124	25	701	5,765
Eitel Hospital▲○	Gen	NPAssn	102	89	18	707	4,630
Elizabeth Kenny Institute▲	PhyMed	NPAssn	120	116			510
Fairview Hospital+▲○	Gen	Church	190	153	43	1,580	8,055
Franklin Hospital	ChrConv	Corp	69	69			62
Janney Children's Hospital	Unit of Abbott Hospital						
Lutheran Deaconess Home and Hospital★+▲○	Gen	Church	*160*	*150*	*40*	1,284	6,551
Maternity Hospital+▲○	Mat	NPAssn	45	29	45	1,455	1,638
Minneapolis General Hospital★+▲○	Gen	City	574	405	55	616	9,005
Minnesota General Hospital	See University of Minnesota Hospitals						
Northwestern Hospital★+▲○	Gen	NPAssn	260	229	40	1,759	10,537
St Andrew's Hospital▲	Gen	NPAssn	82	51	18	401	3,064
St Barnabas Hospital★+▲○	Gen	NPAssn	200	166	45	2,119	9,481
St Mary's Hospital★+▲○	Gen	Church	335	231	60	2,746	13,012
Sheltering Arms Hospital▲	Orth	NPAssn	49	68			356
Shriners Hospital for Crippled Children+▲	Orth	NPAssn	*60*	*59*			101
Swedish Hospital★+▲○	Gen	NPAssn	420	281	72	2,873	14,593
University of Minnesota Hospitals★+▲○	Gen	State	450	376	25	389	10,288
Veterans Admin Hospital+▲	Gen	Vet	1,046	985			11,125
Montevideo, 5,220—Chippewa							
Montevideo Hospital	Gen	NPAssn	50	35	10	381	1,500
Monticello, 1,076—Wright							
Hart Hospital	Gen	Part	15	9	4	130	351
Moorhead, 9,491—Clay							
St Ansgar's Hospital	Gen	Church	52	41	12	580	2,017
Moose Lake, 1,432—Carlton							
Moose Lake Community Hospital	Gen	NPAssn	18	9	6	172	1,118
Moose Lake State Hosp▲○	Ment	State	1,058	1,004			372

Key to symbols and abbreviations is on page 38

MINNESOTA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Mora 1 494—Kanabec							
Kanabec Hospital	Gen	County	30	20	10	252	1 2[illegible]0
Morris 3 914—Stevens							
Morris Hospital	Gen	Indiv	16	10	6	100	601
Stevens County Hospital	Gen	NPAssn	16	10	7	121	601
Mountain Lake 1,745—Cottonwood							
Basinger Clinic Hospital	Gen	NPAssn	33	13			655
Bethel Hospital	Gen	NPAssn	21	11	8	140	580
New Prague 1 645—Le Sueur							
New Prague Community Hospital	Gen	NPAssn	18	10	6	337	659
New Ulm 8 743—Brown							
Loretto Hospital	Gen	Church	50	34	10	286	1 682
Union Hospital	Gen	NPAssn	65	51	12	253	1 968
Nopeming 75—St Louis							
Nopeming Sanatorium+▲○	TB	County	288	[illegible]			243
Northfield 4 533—Rice							
Northfield City Hospital	Gen	City	34	25	12	314	1 831
Oak Terrace 200—Hennepin							
Christian Memorial Tuberculosis Hospital	Unit of Glen Lake Sanatorium						
Glen Lake Sanatorium+▲○	TB	County	676	580			480
Ortonville 2 469—Big Stone							
Ortonville Municipal Hosp	Gen	City	20	14	7	186	746
Owatonna 8 694—Steele							
Owatonna City Hospital	Gen	City	55	37	15	404	1 916
Parkers Prairie 781—Otter Tail							
St *Raphael Hospital*	Gen	Church	12		5	*Estab*	*1949*
Park Rapids 2 643—Hubbard							
St Joseph's Hospital	Gen	Church	42	20	12	290	1 697
Paynesville 1,317—Stearns							
Myre Hospital	Gen	Part	9	4	3	64	263
Perham 1 534—Otter Tail							
St James Hospital	Gen	Church	40	27	8	270	1 459
Pine City 1 718—Pine							
Lakeside Memorial Hospital	Gen	NPAssn	30	24	6	51	296
Pipestone 4 682—Pipestone							
Ashton Memorial Hospital	Gen	NPAssn	45	82	11	401	1 637
Preston 1,447—Fillmore							
Preston Hospital	Gen	Indiv	14	7	6	155	[illegible]
Princeton 1 855—Mille Lacs							
Community Hospital	Gen	NPAssn	24	16	9	[illegible]	1 [illegible]1
Puposky 75—Beltrami							
Lake Julia Tuberculosis Sanatorium	TB	Counties	52	40			43
Redlake 150—Beltrami							
Redlake Indian Hospital	Gen	IA	81	20	6	135	1 117
Red Wing 9 962—Goodhue							
Red Wing Hospital	Gen	City	40	27	9	132	1 0 2
St John's Hospital▲○	Gen	NPAssn	95	68	20	644	2,840
Redwood Falls 3 270—Redwood							
Redwood Falls Municipal Hospital	Gen	City	23	16	10	309	1,243
Richmond 634—Stearns							
Richmond Hospital	Gen	NPAssn	11	8	4	116	454
Rochester 26 312—Olmsted							
Colonial Hospital▲○	Gen	Corp	288	221			8,574
Kahler Hospital▲○	Gen	Corp	150	114			4,530
Rochester State Hospital+▲○	Ment	State	1 692	1 576			644
St Mary's Hospital▲○	Gen	Church	850	[illegible]	60	1 443	1[illegible] 679
Worrall Hospital▲○	ENTSkCa	Corp	186	151			6,[illegible]99
Roseau 1 745—Roseau							
Budd Hospital	Gen	Indiv	25	21	10	219	8[illegible]3
Rush City 1 020—Chisago							
Rush City Hospital	Gen	City	25	19	5	223	8[illegible]7
St Cloud 24 173—Stearns							
Minnesota State Reformatory Hospital	Inst	State	30	10			313
St Cloud Hospital▲○	Gen	Church	270	215	54	2 186	10 110
Veterans Admin Hospital▲○	Ment	Vet	1 3 2	1 336			454
St James 3 400—Watonwan							
St James Hospital	Gen	Church	26	17	10	166	1 061
St Paul 287 736—Ramsey							
Ancker Hospital*+▲○	GenTb	CyCo	850	636	55	397	7,957
Bethesda Hospital*▲○	Gen	Church	162	140	35	1 810	7,558
Charles T Miller Hosp *+▲○	Gen	NPAssn	275	236	50	1 016	8 929
Children's Hospital▲○	Chil	NPAssn	80	60			2,588
Crestview Hospital	N&M	Corp	38			Estab	1949
Gillette State Hospital for Crippled Children+▲○	Orth	State	225	171			701
Midway Hospital▲○	Gen	Church	125	109	35	1 5[illegible]	5 685
Mounds Park Hospital▲○	Gen	Church	132	130	14	546	2 859
Northern Pacific Beneficial Association Hospital▲	Gen	NPAssn	135	108			3 658
Ramsey County Tuberculosis Pavilion	Unit of Ancker Hospital						
Riverview Memorial Hosp▲	Gen	NPAssn	64		15	Estab	1949
St John's Hospital▲	Gen	Church	85	78	15	787	4 816
St Joseph's Hospital*+▲○	Gen	Church	256	229	50	2 080	9 817
St Luke's Hospital	Gen	NPAssn	120	97	24	572	4,232
Salvation Army Booth Memorial Hospital	Mat	Church	50	6	9	184	966
St Peter 5 870—Nicollet							
Community Hospital	Gen	City	35	15	11	327	1 005
St Peter State Hospital▲○	Ment	State	2,379	2,204			795
Sandstone 1,659—Pine							
Federal Correctional Institution▲	Inst	USPHS	28	1			98
Shakopee, 2 418—Scott							
St Francis Home and Hosp	Gen	Church	20	18	10	284	815

MINNESOTA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Slayton 1,687—Murray							
Home Hospital	Gen	NPAssn	25	23	8	244	1,384
Sleepy Eye 2,923—Brown							
Sleepy Eye Municipal Hosp	Gen	City	30	14	10	2 1	684
Springfield 2,361—Brown							
St John's Hospital	Gen	Church	25	No data supplied			
Spring Grove 967—Houston							
Spring Grove Hospital	Gen	NPAssn	19	7	6	85	459
Staples 2 952—Todd							
Staples Municipal Hospital	Gen	City	25	19	8	313	897
Starbuck 972—Pope							
Minnewaska Hospital	Gen	NPAssn	15	11	4	80	304
Stillwater 7 013—Washington							
Lakeview Memorial Hosp▲	Gen	CyCo	57	33	8	355	1 586
Minnesota State Prison Hospital▲	Inst	State	66	32	-		390
Thief River Falls 6 019—Pennington							
Mercy Hospital	Gen	NPAssn	49	31	10	344	1 853
Oakland Park Sanatorium	TB	Counties	65	34			21
St Luke's Hospital▲	Gen	NPAssn	66	35	8	290	1 659
Tracy, 3 085—Lyon							
Clinic Hospital	Gen	Corp	15	4	5	71	383
Tracy Hospital	Gen	NPAssn	35	21	12	[illegible]	1 163
Two Harbors 4 046—Lake							
Two Harbors Hospital	Gen	NPAssn	33	22	8	119	7 7
Tyler 1 005—Lincoln							
Tyler Hospital	Gen	City	35	29	10	20	1 25[illegible]
Virginia, 12,264—St Louis							
Virginia Municipal Hosp▲	Gen	City	101	76	25	632	3,395
Wabasha, 2,368—Wabasha							
Buena Vista Sanatorium	TB	Counties	30	30			34
St. Elizabeth's Hospital	Gen	Church	74	44	10	295	1,368
Waconia 1,815—Carver							
Nagel Hospital	Gen	Indiv	28	19	8	63	537
Wadena 2 916—Wadena							
Fair Oaks Lodge Sanatorium	TB	Counties	31	25			19
Wesley Hospital▲	Gen	NPAssn	46	35	10	460	1,506
Walker 039—Cass							
Walker Hospital	Gen	Indiv	12	2	4	39	103
Warren 1 639—Marshall							
Warren Hospital▲	Gen	Church	40	30	8	251	1 405
Warroad 1,309—Roseau							
Warroad Municipal Hospital	Gen	City	25	12	6		6 5
Waseca 4,270—Waseca							
Waseca Memorial Hospital	Gen	CyCo	24	15	9	329	1 022
Wayzata 1 473—Hennepin							
Minnetonka Hospital	Gen	NPAssn	15	8	5	65	205
White Earth 350—Becker							
White Earth Indian Hospital	Gen	IA	24	12	8	97	553
Willmar 7 623—Kandiyohi							
Rice Memorial Hospital	Gen	City	95	8	18	907	3 702
Willmar State Hospital	Ment	State	1 4[illegible]0	1,28[illegible]			307
Windom 2 807—Cottonwood							
Windom Hospital	Gen	NPAssn	25	21	12	287	1 011
Winnebago 1 092—Faribault							
Community Memorial Hosp	Gen	City	12	9	6	117	3 0
Winona 22 490—Winona							
Winona General Hospital▲	Gen	NPAssn	112	8	20	949	3 061
Worthington 5 918—Nobles							
Southwestern Minnesota Sanatorium	TB	Counties	54	4			30
Worthington Hospital	Gen	NPAssn	34	28	14	[illegible]	[illegible]

Related Institutions

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Belgrade 553—Stearns							
Belgrade Community Hosp	Gen	Indiv	12	9	5	60	483
Blue Earth 3 702—Faribault							
Blue Earth Community Hospital	Gen	City	15	9	3	202	5[illegible]
Comfrey 555—Brown							
Comfrey Hospital	Gen	NPAssn	[illegible]	6	3	46	185
Hastings 5 662—Dakota							
St Francis Hospital	Gen	Indiv	20	17	4	11	144
Madelia, 1 652—Watonwan							
Madelia Hospital	Gen	City	12	6	5	91	[illegible]
Minneapolis 492 370—Hennepin							
Glenwood Hills Hospitals	N&M	NPAssn	64	60			811
Homewood Hospital	Unit of Glenwood Hills Hospitals						
Minnesota Soldiers Home Hospital	Inst	State	84	[illegible]			1[illegible]
Parkview Hospital	Conv	NPAssn	16[illegible]	134			312
Rest Hospital	N&M	Part	21	1[illegible]			2[illegible]0
Vocational Nursing Home	Conv	NPAssn	[illegible]	[illegible]			47
Women's Welfare League Home for Convalescents	Conv	NPAssn	25	19			16
Northfield 4 533—Rice							
Allen Memorial Hospital of Carleton College	Inst	NPAssn	18	3			244
St Olaf College Hospital	Inst	Church	13	2			2[illegible]
Owatonna 8 694—Steele							
Owatonna State School Hospital	Inst	State	50	11			[illegible]
Pelican Rapids 1,500—Otter Tail							
Pelican Valley Hospital	Gen	NPAssn	15	9	3	[illegible]	816
Red Wing 9,962—Goodhue							
Minnesota State Training School for Boys	Inst	State	25	[illegible]			[illegible]
St Paul 257 730—Ramsey							
Children's Preventorium of Ramsey County	TB	CyCo	80	67			29
Shakopee 2,418—Scott							
Mudcura Sanitarium	Conv	Corp	75	[illegible]			1 [illegible]

Key to symbols and abbreviations is on page 38

MISSISSIPPI

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Aberdeen, 4,746—Monroe							
Aberdeen Hospital	Gen	NPAssn	28	12	6	171	773
Amory, 3,727—Monroe							
Gilmore Sanitarium	Gen	NPAssn	24	16	6	199	1,235
Baldwyn, 1,279—Lee							
Baldwyn Hospital	Gen	Indiv	16	13	3	242	961
Biloxi, 17,475—*Harrison*							
New Biloxi Hospital	Gen	NPAssn	74	20	20	627	1,652
Station Hospital▲	Gen	USAF	175	106	19	705	3,859
Veterans Admin Center▲	Gen	Vet	258	215			1,784
Booneville, 1,893—Prentiss							
Northeast Mississippi Hosp	Gen	CyCo	50		10		
Brandon, 1,184—Rankin							
Brandon Hospital	Gen	Indiv	50	17	6	240	1,200
Brookhaven, 6,232—Lincoln							
Kings Daughters Hospital	Gen	NPAssn	64	27	21	651	3,034
Byhalia, 743—Marshall							
Leonard Wright Sanatorium	N&M	Indiv	15	10			309
Canton, 6,011—Madison							
Kings Daughters Hospital	Gen	NPAssn	40	20	8	242	1,252
Cary, 491—Sharkey							
Pool's Clinic Hospital	Gen	Indiv	10	3	5	50	137
Centreville, 1,163—Wilkinson							
Field Memorial Community Hospital	Gen	Counties	28	13	8	136	953
Charleston, 2,100—Tallahatchie							
Tallahatchie Hospital	Gen	Indiv	26	18	5	127	983
Clarksdale, 12,168—Coahoma							
Clarksdale Hospital	Gen	NPAssn	35	19	14	208	1,479
Cleveland, 4,189—Bolivar							
City Hospital	Gen	City	25	22	12	307	1,638
Columbia, 6,064—Marion							
Columbia Clinic Hospital	Gen	NPAssn	65	20	12	261	1,714
Columbus, 13,645—Lowndes							
Columbus Hospital	Gen	NPAssn	33	24	9	254	1,419
Doster Hospital and Clinic▲○	Gen	NPAssn	50	28	11	141	1,547
Corinth, 7,818—Alcorn							
Community Hospital	Gen	City	64	27	12	244	1,786
Corinth Hospital	Gen	Indiv	30	14	9	248	937
Greenville, 20,892—Washington							
Kings Daughters Hospital▲○	Gen	NPAssn	118	88	24	492	4,297
Greenwood, 14,767—Leflore							
Delta Medical Center	Ven	State	250	165			8,001
Greenwood Colored Hospital	Gen	Indiv	25	11	4	27	866
Greenwood Leflore Hospital○	Gen	CyCo	58	49	21	540	2,578
Grenada, 5,831—Grenada							
Grenada Hospital○	Gen	Corp	75	34	12	292	2,747
Gulfport, 15,195—Harrison							
Memorial Hospital	Gen	CyCo	100	62	18	727	3,651
Veterans Admin Hospital+▲	Ment	Vet	1,078	1,019			976
Hattiesburg, 21,026—Forrest							
Methodist Hospital○	Gen	Church	127	76	18	838	3,328
South Mississippi Infirmary	Gen	Indiv	70	29	15	365	1,027
Holly Springs, 2,750—Marshall							
North Mississippi Hospital○	Gen	Counties	30	19	6	152	1,147
Houston, 1,729—*Chickasaw*							
Houston Hospital○	Gen	NPAssn	50	40	8	164	1,852
Indianola, 3,604—Sunflower							
Kings Daughters Hospital	Gen	NPAssn	28	15	8		1,056
Jackson, 62,107—Hinds							
Mississippi Baptist Hospital*+▲○	Gen	Church	255	222	46	1,540	13,217
Mississippi State Charity Hospital	Gen	State	75	58	12	91	1,686
St Dominic's Hospital▲○	Gen	Church	75	59	18	572	4,850
Veterans Admin Hospital	Gen	Vet	650	464			5,994
Dr Willis Walley *Hospital*	Gen	NPAssn	25	5	10	19	202
Kosciusko, 4,291—Attala							
Montfort Jones Memorial Hospital	Gen	CyCo	50	28	15		2,032
Laurel, 20,598—Jones							
Laurel General Hospital○	Gen	Indiv	60	40	8	217	2,752
Masonite Hospital	Gen	NPAssn	50	25	8	369	2,320
South Mississippi Charity Hospital○	Gen	State	110	63	15	554	3,919
Leland, ,700—Washington							
Leland City Hospital	Gen	City	22	5	9	80	934
Lexington, 2,930—Holmes							
Holmes County Community Hospital	Gen	County	25	13	6	174	1,004
Louisville, 3,451—Winston							
Louisville *Hospital*	Gen	Part	23	10	6	71	1,546
Macon, 2,261—Noxubee							
Macon Hospital	Gen	NPAssn	30	16	7	123	1,109
Magee, 1,221—Simpson							
Magee General Hospital	Gen	NPAssn	28	17	10	327	2,090
Magnolia, 2,127—Pike							
Beacham Memorial Hospital	Gen	NPAssn	25	10	8	177	794
Marks, 1,818—Quitman							
Marks Hospital	Gen	Indiv	20	4	5	124	500
McComb, 9,898—Pike							
McComb City Hospital	Gen	NPAssn	25	26	7	282	1,797
McComb Infirmary○	Gen	NPAssn	50	30	6	252	2,064
Meridian, 35,481—Lauderdale							
Anderson Infirmary○	Gen	NPAssn	68	49	14	436	2,995
East Mississippi State Hosp	Ment	State	833	720			219
Hoyle's Sanitarium	N&M	Indiv	37	7			277
Lewis Hospital	Gen	Indiv	12	4	5	19	336
Matty Hersee Hospital○	Gen	State	85	60	10	493	2,829
Meridian Public Health Treatment Center	Ven	State	500	354	10	6	12,901
Riley's Hospital	Gen	NPAssn	45	20	10	226	1,942
Rush Memorial Hospital▲○	Gen	NPAssn	92	65	16	163	3,902
St Joseph Hospital○	Gen	Church	38	28	11	266	1,894
Morton, 934—*Scott*							
Scott County Hospital	Gen	Part	20	7	8	216	716
Mound Bayou, 806—Bolivar							
Taborian Hospital	Gen	NPAssn	52	49	6	125	1,773
Natchez, 15,296—Adams							
Natchez Charity Hospital	Gen	State	100	83	16	613	3,703
Natchez General Hospital○	Gen	Part	60	26	10	165	1,749
Natchez Sanatorium	Gen	NPAssn	50	21	10	219	1,108
New Albany, 3,602—Union							
Mayes Hospital	Gen	Indiv	44	38	10	504	2,000
New Albany Hosp and Clinic	Gen	NPAssn	15	7	2	41	442
Newton, 1,800—Newton							
Newton Hospital	Gen	NPAssn	25	16	6	252	1,466
Oxford, 3,435—*Lafayette*							
Bramlett Hospital	Gen	Indiv	56	21	10	95	1,000
Oxford Hospital	Gen	Corp	30	24	6	207	1,439
Pascagoula, 5,900—Jackson							
Jackson County Hospital	Gen	County	85	30	25	540	2,322
Philadelphia, 3,711—Neshoba							
Choctaw Hospital	Gen	IA	35	15	7	67	727
Picayune, 5,129—*Pearl River*							
Martin Sanatorium	Gen	City	26	16	8	275	[illegible]
Pontotoc, 1,832—Pontotoc							
Pontotoc Clinic Hospital	Gen	Part	19	9	3	223	962
Poplarville, 1,664—Pearl River							
Poplarville Hospital	Gen	Indiv	25	No data supplied			
Rosedale, 2,063—Bolivar							
Dr Nobles' Clinic Hospital	Gen	Indiv	25	19	1	35	721
Rosedale-Bolivar County Hospital	Gen	City	16	5	4	37	306
Sanatorium, 200—Simpson							
Mississippi State Tuberculosis Sanatorium+▲	TB	State	457	405			423
Starkville, 4,900—Oktibbeha							
J W Eckford Memorial Clinic Hospital	Gen	Indiv	15	9	8	376	818
State College, 300—Oktibbeha							
James Z George Memorial Hospital	Inst	State	42	2			487
Tupelo, 8,212—Lee							
North Mississippi Community Hospital▲	Gen	NPAssn	49	68	10	629	[illegible]
Tylertown, 1,376—Walthall							
Pittman Hospital	Gen	Corp	35	22	8	336	1,330
Walthall Hospital	Gen	NPAssn	50	17	5	368	1,570
Union, 1,543—Newton							
Laird's Hospital	Gen	NPAssn	30	20	12	307	1,051
Vicksburg, 24,460—Warren							
Lutheran Hospital+▲○	Gen	Church	90	89	12	167	3,073
Mercy Hospital Street Memorial*+▲○	Gen	Church	125	95	17	417	3,810
Mississippi State Charity Hospital	Gen	State	75	64	12	[illegible]	2,063
Vicksburg Infirmary▲	Gen	NPAssn	57	30	16	125	[illegible]
Water Valley, 3,340—Yalobusha							
Evans Hospital	Gen	Indiv	10	3	3	36	212
Water Valley Hospital	Gen	Part	25	8	5	57	525
West Point, 5,627—Clay							
Flowers Hospital	Gen	Part	33	19	8	217	1,188
Whitfield, 300—Rankin							
Mississippi State Hospital▲	Ment	State	4,000	3,796			1,941
Winona, 2,533—Montgomery							
Winona Infirmary▲	Gen	NPAssn	30	15	5	159	654
Yazoo City, 7,258—Yazoo							
Kings Daughters Hospital	Gen	NPAssn	71	21	12	278	1,893
Yazoo Clinic and Hospital	Gen	Part	20	7	2	2	158

Related Institutions

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Bay St Louis, 4,138—Hancock							
Kings Daughters and Sons Hospital	Gen	NPAssn	15	No data supplied			
Ellisville, 2,607—Jones							
Ellisville State School	MeDe	State	350	350			85
Greenville, 20,892—Washington							
Colored Kings *Daughters* Hospital	Gen	Indiv	75	42	2	31	1,258
Jackson, 62,107—Hinds							
Sallie Harris Clinic Hospital	Gen	Indiv	18				
Schmid Sanitarium	N&M	Corp	26	14			359
Z T Hubert Health Center of Jackson College	Gen	NPAssn	25	9	5	77	[illegible]

MISSOURI

Hospitals and Sanatoriums

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Aurora, 4,050—Lawrence							
Aurora Hospital	Gen	City	20	11	5	218	558
Bethany, 2,082—Harrison							
Bethany Hospital and Clinic	Gen	Indiv	20	9	7	74	461
Bonne Terre, 3,730—St Francois							
Bonne Terre Hospital▲	Gen	NPAssn	44	40	15	553	[illegible]
Boonville, 6,089—Cooper							
St Joseph's Hospital▲	Gen	Church	95	45	20	377	2,100
Butler, 2,958—Bates							
Butler Memorial Hospital	Gen	City	35	18	8	225	1,270
California, 2,525—Moniteau							
Latham Sanitarium	Gen	Indiv	33	13	9	162	661
Cape Girardeau, 19,426—Cape Girardeau							
St Francis Hospital▲	Gen	Church	115	93	27	1,004	4,003
Southeast Missouri Hospital	Gen	NPAssn	71	54	23	475	2,789

Key to symbols and abbreviations is on page 38

MISSOURI—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Carrollton 4 070—Carroll							
Atwood Hospital	Gen	Indiv	16	8	2	55	255
Bales Hospital	Gen	Indiv	12	8	6	105	426
Carthage 10 585—Jasper							
McCune-Brooks Hospital▲	Gen	City	50	30	14	405	1 599
Cassville 1 914—Barry							
Barry County Clinic and Hospital	Gen	Indiv	20	10	4	72	504
Clayton, 13,069—St Louis							
St Louis County Hosp ★+▲	Gen	County	216	122	32	587	3,608
Clinton 6 041—Henry							
Clinton General Hospital	Gen	Corp	32	24	4	164	853
Columbia 18 399—Boone							
Boone County General Hospital▲	Gen	County	53	37	10	435	1 799
Ellis Fischel State Cancer Hospital+▲	Cancer	State	104	68			1,356
Noyes Hospital	Unit of University Hospitals						
Parker Memorial Hospital	Unit of University Hospitals						
State Hospital for Crippled Children	Unit of University Hospitals						
University Hospitals+▲	Gen	State	100	63	10	862	3,317
Excelsior Springs 4,864—Clay							
Excelsior Springs Sanitarium and Hospital	Gen	NPAssn	40	30	12	283	1,340
Veterans Admin Hospital+▲	TB	Vet	251	208			406
Farmington 3 738—St Francois							
State Hospital No 4▲	Ment	State	1 600	1,670			561
Fayette 2 608—Howard							
Lee Hospital	Gen	Part	35	29	7	97	1 303
Fulton 829—Callaway							
State Hospital No 1+▲	Ment	State	2 600	2 576			500
Hannibal 20,865—Marion							
Levering Hospital	Gen	City	129	119	21	415	4 127
St Elizabeth s Hospital	Gen	Church	100	82	26	504	4 138
Harrisonville 2,322—Cass							
Memorial Hospital	Gen	NPAssn	26	19	8	165	876
Humansville 786—Polk							
George Dimmitt Memorial Hospital	Gen	NPAssn	19	6	7	114	460
Independence 16 066—Jackson							
Independence Sanitarium and Hospital▲○	Gen	Church	141	107	34	1 181	5 920
Rural Jackson County Emergency Hospital	Gen	County	35	32	9	69	690
Ironton 1 083—Iron							
Arcadia Valley Hospital	Gen	Church	28	32	12	419	1 602
Jefferson Barracks 842—St Louis							
Veterans Admin Hospital+▲	Gen	Vet	676	625			8,957
Jefferson City 24 268—Cole							
Missouri State Penitentiary Hospital▲	Inst	State	203	56			710
St Mary s Hospital▲	Gen	Church	115	96	20	818	4 186
Joplin 37 144—Jasper							
Freeman Methodist Hosp ▲	Gen	Church	80	53	20	395	2 580
St John s Hospital▲○	Gen	Church	150	95	26	785	4 696
Kansas City 399 178—Jackson							
Children s Mercy Hosp +▲○	Chil	NPAssn	145	139			2,211
Fairmount Maternity Hosp	Mat	Corp	60	29	36	123	134
Kansas City General Hospital No 1★+▲○	Gen	City	550	395	50	804	10,315
Kansas City General Hospital No 2★+▲○	Gen	City	269	204	27	777	4 249
Kansas City Municipal Tuberculosis Hospital+▲	TB	City	240	191			445
Major Clinic and Hospital	N&M	Indiv	35	12			78
Menorah Hospital★+▲	Gen	NPAssn	160	156	20	714	6 049
Municipal Contagious Disease Hospital	Unit of Kansas City General Hospital No 1						
Neurological Hospital	N&M	NPAssn	55	67			975
Ralph Sanitarium	Drug	Part	25	13			336
Research Hospital★+▲○	Gen	NPAssn	211	230	40	1,392	7 685
St Joseph Hospital★+▲○	Gen	Church	321	290	42	2 067	12 575
St Luke s Hospital★+▲○	Gen	Church	375	333	53	2 001	11 307
St Mary s Hospital★+▲○	Gen	Church	170	156	40	1 145	6 494
St Vincent s Hospital▲	Mat	Church	36	14	30	591	632
Trinity Lutheran Hosp ★▲○	Gen	Church	130	115	25	1 102	5 215
Wheatley Provident Hosp ▲	Gen	NPAssn	67	36	5	117	1 073
Willows Maternity Sanitarium	Mat	Corp	75	56	55	900	227
Kennett 6,335—Dunklin							
Presnell Hospital	Gen	Indiv	40	29	14	312	1 444
Kirksville 10 080—Adair							
Grim Smith Memorial Hosp	Gen	Corp	52	35	14	313	2 058
Stickler Hospital	Gen	Corp	25	11	6	24	569
Kirkwood 12 132—St Louis							
Oakland Park Hospital	N&M	Corp	12	8			10
U S Marine Hospital▲	Gen	USPHS	163	125			1 931
Koch 900—St Louis							
Robert Koch Hospital+▲○	TB	City	650	455			428
Lamar 2 092—Barton							
Memorial Hospital	Gen	County	30		12	Estab	1949
Lebanon 5 025—Laclede							
Louise G Wallace Hosp	Gen	NPAssn	57	35	20	397	1 032
Lockwood 841—Dade							
Lockwood Memorial Hosp	Gen	NPAssn	14	5	6	60	310
Louisiana 4 609—Pike							
Pike County Hospital▲	Gen	County	57	42	10	2[illegible]	1,50[illegible]

MISSOURI—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Marceline 3 206—Linn							
St Francis Hospital	Gen	Church	17	14	8	[illegible]	603
Marshall 8,533—Saline							
Georgia Brown Blosser Home for Crippled Children	Orth	NPAssn	36	22			102
John Fitzgibbon Memorial Hospital	Gen	NPAssn	40	33	12	308	2 182
Maryville 5 700—Nodaway							
St Francis Hospital▲	Gen	Church	100	59	18	6[illegible]9	3,319
Mexico 9 053—Audrain							
Audrain Hospital▲	Gen	County	51	50	14	439	2 769
Moberly 12,920—Randolph							
Wabash Employes Hosp ▲	Indus	NPAssn	35	24			579
Woodland Hospital and Clinic▲	Gen	Corp	40	32	10	259	1 911
Monett 4,395—Barry							
St Vincent Hospital	Gen	Church	20	12	8	300	950
Mount Vernon 1,982—Lawrence							
Missouri State Sanatorium▲	TB	State	650	596			600
Neosho 5,318—Newton							
Sale Memorial Hospital	Gen	Indiv	40	21	18	267	1 618
Nevada 8 181—Vernon							
Nevada City Hospital	Gen	City	37	30	7	355	1 482
State Hospital No 3▲	Ment	State	2 100	2 042			356
Ozark 961—Christian							
Haguewood Hospital	Gen	Indiv	10	6	4	100	175
Poplar Bluff 11 163—Butler							
Brandon Hospital	Gen	Indiv	40	13	4	43	468
Doctors Hospital	Gen	Part	55		14	Estab	1949
Lucy Lee Hospital	Gen	Indiv	65	No data supplied			
Poplar Bluff Hospital	Gen	Part	85	60	20	517	3 665
Princeton 1 584—Mercer							
Lambert Hospital	Gen	Corp	15	11	5	63	364
Robertson 300—St Louis							
Jewish Sanatorium	Chr	NPAssn	81	82			57
Rolla 5 141—Phelps							
Missouri Trachoma Hosp	Trach	State	55	45			501
St Charles 10 803—St. Charles							
St Joseph s Hospital▲	Gen	Church	100	81	24	837	3 725
St Joseph 75 711—Buchanan							
Missouri Methodist Hospital★+▲○	Gen	Church	300	146	20	741	6 62[illegible]
St Joseph s Hospital★▲○	Gen	Church	148	112	36	1 035	5,188
State Hosp No 2+▲	Ment	State	2 550	2 482			349
St Louis 816,048—St Louis City							
Alexian Brothers Hosp ▲○	Gen	Church	175	144			3 064
Barnard Free Skin and Cancer Hospital+▲	SkCancer	NPAssn	42	38			1 091
Barnes Hospital★+▲○	Gen	NPAssn	583	5[illegible]			16,8[illegible]7
Bethesda General Hosp ▲	Gen	NPAssn	100	62	20	483	1 740
Christian Hospital★▲	Gen	NPAssn	125	95	35	1 007	3,054
DePaul Hospital★+▲○	Gen	Church	269	252	62	2,313	8 931
Evangelical Deaconess Hospital★▲○	Gen	Church	250	229	40	1 417	9 047
Faith Hospital	Gen	NPAssn	35	25	12	227	1 757
Firmin Desloge Hospital★+▲○	Unit of St Mary s Group of Hospitals						
Frisco Employes Hosp ▲	Indus	NPAssn	80	[illegible]			1,945
Homer G Phillips Hosp ★+▲○	Gen	City	694	[illegible]	73	2 0[illegible]	13,977
Jewish Hospital★+▲○	Gen	NPAssn	295	243	42	1 211	8 785
Josephine Heitkamp Memorial Hospital▲	Gen	Church	48	40	20	[illegible]	2,2[illegible]
Lutheran Hospital★▲○	Gen	Church	165	145	20	1 000	5,859
Marian Hospital	Gen	NPAssn	[illegible]	17			[illegible]
McMillan Hospital▲○	Unit of Barnes Hospital						
Midwestern Medical Center	Ven	USPHS	108	67			[illegible]
Missouri Baptist Hosp ★+▲○	Gen	Church	450	[illegible]	50	1 664	13 [illegible]
Missouri Pacific Hosp +▲	Indus	NPAssn	325	[illegible]			[illegible] 044
Mount St Rose Sanat +▲○	Unit of St Mary s Group of Hospitals						
Park Lane Memorial Hosp	Gen	NPAssn	125	[illegible]	30	[illegible]	[illegible]
Peoples Hospital▲	Gen	NPAssn	83	[illegible]	20	[illegible]	2,244
St Ann s Maternity Hosp	Mat	Church	26	[illegible]	[illegible]	[illegible]	[illegible]
St Anthony's Hosp ★+▲	Gen	Church	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
St John s Hosp ★+▲○	Gen	Church	340	312	65	[illegible]	[illegible]
St Louis Children s Hospital+▲○	Chil	NPAssn	1[illegible]6	[illegible]			3,351
St Louis City Hospital★+▲○	Gen	City	1 059	[illegible]	[illegible]	[illegible]	[illegible]
St Louis Maternity Hospital+▲○	MatGyn	NPAssn	139	114	125	[illegible]	4,018
St Louis State Hosp +▲○	Ment	State	3 500	[illegible]			[illegible]
St Luke s Hosp ★+▲○	Gen	Church	184	[illegible]	[illegible]	[illegible]	[illegible]
St Mary s Group of Hospitals★+▲○	GenTb	Church	718	[illegible]	108	4 [illegible]	[illegible]
St Mary s Hospital★+▲○	Unit of St Mary s Group of Hospital						
St Mary s Infirmary★▲○	Gen	Church	146	11[illegible]	[illegible]	1 010	[illegible]
St Vincent s Sanitarium▲○	N&M	Church	[illegible]	218			41
Shriners Hospital for Crippled Children+▲○	Orth	NPAssn	120	10[illegible]			405
Salem 3 151—Dent							
Hart Clinic Hospital	Gen	Indiv	17	7	6	[illegible]	409
Sedalia 20 428—Pettis							
John H Bothwell Memorial Hospital▲	Gen	City	95	49	22	[illegible]	2 015
Smithville 772—Clay							
Smithville Community Hosp	Gen	NPAssn	30	19	12	107	953
Springfield 61,238—Greene							
Burge Hospital▲	Gen	NPAssn	[illegible]	[illegible]	24	[illegible]	[illegible]
City Hospital	Gen	City	20	1[illegible]	6	[illegible]	[illegible]
Medical Center for Federal Prisoners▲	Inst	Fed	1,142	623			[illegible]
St John s Hospital▲○	Gen	Church	140	120	20	[illegible]	6 152
Springfield Baptist Hosp ▲○	Gen	NPAssn	100	87	14	[illegible]	4,223
Veterans Admin. Hospital▲	TB	Vet	600	4[illegible]			[illegible]

Key to symbols and abbreviations is on page 38

MISSOURI—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Trenton, 7,046—Grundy							
Cullers Hospital	Gen	Indiv	24	20	6	150	1,020
Wright Memorial Hospital	Gen	NPAssn	21	11	4	96	682
Warrensburg, 5,868—Johnson							
Warrensburg Clinic and Hospital	Gen	Corp	30	25	6	246	1 326
Washington, 6 756—Franklin							
St Francis Hospital	Gen	Church	120	70	20	844	3 088
Waverly, 870—Lafayette							
Kelling Clinic and Hospital	Gen	Part	11	9	5	48	417
Waynesville, 468—Pulaski							
Waynesville General Hosp ▲	Gen	State	47	27	13	335	1,456
Webb City, 7,033—Jasper							
Jasper County Tuberculosis Hospital	TB	County	110	72			153
Webster Groves, 18 394—St Louis							
Glenwood Sanatorium	N&M	Corp	65	59			144
West Plains 4,026—Howell							
Christa Hogan Hospital	Gen	Indiv	18	10	8	104	550

Related Institutions

Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Independence, 16,066—Jackson							
Vallo Sanitarium	N&M	Indiv	20	17			17
Kansas City, 399 178—Jackson							
Florence Crittenton Home	Mat	NPAssn	15	15	20	49	57
Florence Home for Colored Girls	Mat	NPAssn	48	16	4	48	59
Trowbridge Training School for Nervous and Backward Children	MeDe	Indiv	35	31			33
Kennett, 6, 55—Dunklin							
Spence Hospital and Clinic	FNP	Indiv	5	1			
Liberty, 3,598—Clay							
Missouri Odd Fellows Home Hospital	Inst	NPAssn	50				
Marshall, 8,533—Saline							
Missouri State School	MeDe	State	1,701	1,744			110
Marthasville, 321—Warren							
Evangelical Emmaus Home for Epileptics and Feebleminded	MeDe	Church	100	90			1
Rolla 5,141—Phelps							
Missouri School of Mines Hospital	Inst	State	21	1			221
St Charles, 10,803—St Charles							
Evangelical Emmaus Home for Epileptics and Feebleminded	MeDe	Church	150	145			16
St James, 1 812—Phelps							
State Federal Soldiers Home Hospital	Inst	State	60	25			122
St Louis 816 048—St Louis City							
Booth Memorial Hosp ▲	Gen	Church	60	37	40	454	808
City Infirmary	Chr	City	1,432	1,355			356
Hospital of Masonic Home	Inst	NPAssn	123	61			241
Mother of Good Counsel Home and Hospital	Chr	Church	80	80			88
St Louis State Training School	MeDe	State	[illegible]	511			35
Webster Groves 18 394—St Louis							
Miriam Rose Bry Convalescent Home	Conv	NPAssn	41	35			298

MONTANA

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Anaconda 11,004—Deer Lodge							
St Ann's Hospital▲	Gen	Church	75	50	15	341	2,278
Billings, 2 ,261—Yellowstone							
Billings Deaconess Hosp▲○	Gen	Church	90	76	26	812	3,742
St Vincent Hospital▲○	GenOrth	Church	200	165	30	1,062	8,035
Bozeman, 8 665—Gallatin							
Bozeman Deaconess Hosp ○	Gen	Church	82	56	14	595	2,918
Browning, 1 825—Glacier							
Blackfeet Indian Hospital	Gen	IA	45	24	8	158	967
Butte, 37,081—Silver Bow							
Murray Hospital+▲	Gen	Corp	100	83	20	140	3,215
St James Hospital★▲○	Gen	Church	160	110	30	702	4,941
Silver Bow County Hosp	InstGen	County	125	84	8	13	379
Choteau, 1,181—Teton							
Choteau Hospital	Gen	Indiv	16	16	5	12	118
Conrad 1,471—Pondera							
St Mary's Hospital	Gen	Church	56	35	10	235	1,552
Crow Agency, 600—Big Horn							
Crow Indian Hospital	Gen	IA	36	26	4	137	1,251
Deer Lodge, 3,278—Powell							
Montana State Tuberculosis Sanitarium▲○	TB	State	215	201			210
St Joseph Hospital	Gen	Church	50	29	10	147	698
Forsyth, 1,696—Rosebud							
Rosebud Community Hosp	Gen	Church	23	12	6	89	668
Fort Benton, 1,227—Chouteau							
St Clare Hospital	Gen	Church	42	28	7	65	478
Fort Harrison 00—Lewis and Clark							
Veterans Admin Center▲	Gen	Vet	238	181			1,001
Glasgow, 5,799—Valley							
Frances Mahon Deaconess Hospital	Gen	Church	60	27	15	327	1,302

MONTANA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Glendive, 4,524—Dawson							
Glendive General Hospital	Gen	County	40	7	6	36	196
Northern Pacific Hospital▲	Gen	NPAssn	57	39	12	282	2 130
Great Falls, 29 928—Cascade							
Columbus Hospital▲○	Gen	Church	250	200	50	1,011	6 992
Montana Deaconess Hospital★+▲○	Gen	Church	190	135	46	647	5,055
Hamilton, 2,332—Ravalli							
Marcus Daly Memorial Hosp	Gen	NPAssn	40	22	12	254	1,190
Harlem, 1,166—Blaine							
Fort Belknap Indian Hospital and Sanatorium	Gen	IA	47	18	8	133	966
Havre, 6,427—Hill							
Kennedy Deaconess Hosp ▲	Gen	Church	62	32	14	252	1,819
Sacred Heart Hospital▲○	Gen	Church	125	65	20	377	2,740
Helena, 15,056—Lewis and Clark							
St Johns Hospital▲○	Gen	Church	85	61	15	305	3 008
St Peter's Hospital▲	Gen	NPAssn	60	53	12	306	2 101
Shodair Crippled Children's Hospital▲	Orth	NPAssn	28	25	24		309
Jordan, 500—Garfield							
Lutheran Hospital	Gen	Church	21	14	4	54	238
Kalispell, 8,245—Flathead							
Kalispell General Hospital▲	Gen	Church	66	34	12	566	2,443
Lewistown, 5 874—Fergus							
St Joseph's Hospital▲○	Gen	Church	120	62	18	439	3 478
Libby, 1 837—Lincoln							
St John's Lutheran Hospital	Gen	Church	15	12	4	160	500
Livingston, 6,642—Park							
Park Hospital	Gen	Part	30	22	6	173	1 060
Miles City, 7,313—Custer							
Miles City Hospital (Holy Rosary Hospital)▲○	Gen	Church	135	112	15	515	4 871
Missoula, 18,449—Missoula							
Memorial Hospital▲	Gen	NPAssn	42	30	12	305	2,241
Northern Pacific Hospital▲	Indus	NPAssn	85	40			2,013
St Patrick Hospital▲○	Gen	Church	160	137	20	678	6,220
Plentywood, 1,574—Sheridan							
Sheridan Memorial Hospital	Gen	NPAssn	18	8	16	107	431
Polson 2 156—Lake							
Hotel Dieu Hospital	Gen	Church	21	15	8	155	787
Poplar, 1 442—Roosevelt							
Fort Peck Indian Agency Hospital	Gen	IA	23	12	7	91	1,020
Roundup, 2,644—Musselshell							
Musselshell Valley Hospital	Gen	Indiv	20	15	6	74	366
St Ignatius, 768—Lake							
Holy Family Hospital	Gen	Church	50	30	6	208	1 428
Sidney, 2,978—Richland							
Community Memorial Hosp	Gen	NPAssn	42	30	16	320	3 414
Terry, 1,012—Prairie							
Lutheran Good Samaritan Hospital	Gen	Church	13	5	6	50	438
Townsend, 1,300—Broadwater							
Broadwater Hospital	Gen	Corp	32	20	6	126	1,136
Warmsprings, 1,900—Deer Lodge							
Montana State Hospital○	Ment	State	1 856	1,847			
Whitefish 2 602—Flathead							
John B Simons Hospital	Gen	NPAssn	33	20	9	230	1,782
Wolf Point 1 960—Roosevelt							
Trinity Hospital	Gen	NPAssn	27	15	10	192	731

Related Institutions

Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Chester 518—Liberty							
Liberty County Hospital	Gen	County	8	2	5	18	157
Columbus, 962—Stillwater							
Stillwater Community Hosp	Gen	Church	17	4	4	70	506
Great Falls, 29,928—Cascade							
Cascade County Detention Hospital	Iso	CyCo	20	4			196
Hardin, 1,886—Big Horn							
Big Horn County Community Hospital	Gen	NPAssn	22	13	5	147	472
Helena, 15,056—Lewis and Clark							
Lewis and Clark County Hospital	InstGen	County	100	58	3		156
Scobey, 1,311—Daniels							
Clinic Hospital	Gen	Indiv	15	8	3	36	169

NEBRASKA

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Ainsworth, 1,833—Brown							
Ainsworth Clinic and Hosp	Gen	Part	28	14	5	111	1 057
Alliance 6 253—Box Butte							
St Joseph's Hospital▲○	Gen	Church	107	58	20	469	2,340
Auburn, 3,639—Nemaha							
Auburn Hospital	Gen	Indiv	16	8	6	127	476
Tushla General Hospital	Gen	Indiv	15	6	5	63	288
Aurora, 2,419—Hamilton							
Aurora Hospital	Gen	Part	28	15	10	88	527
Bassett, 931—Rock							
Bassett Hospital	Gen	Part	26	9	9	69	464
Beatrice, 10,883—Gage							
Lutheran Hospital▲	Gen	Church	75	52	18	423	1,078
Mennonite Deaconess Home and Hospital	Gen	Church	32	27	10	227	1 076
Benkelman, 1,448—Dundy							
Morehouse Hospital	Gen	Indiv	14	10	5	102	661

Key to symbols and abbreviations is on page 38

NEBRASKA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Blair 3 289—Washington							
Blair Hospital	Gen	Indiv	14	9	3	180	544
Broken Bow 2,968—Custer							
Broken Bow Hospital	Gen	Indiv	50	25	10	87	926
Cambridge 1 084—Furnas							
Republican Valley Hospital	Gen	Indiv	20	6	5	35	245
Chadron 4,262—Dawes							
Chadron Municipal Hospital	Gen	City	25	15	8	207	872
Columbus 7 632—Platte							
Lutheran Hospital	Gen	Church	[illegible]0	20	7	243	1 120
St Mary Hospital▲	Gen	Church	138	80	15	466	2 773
Dalton 358—Cheyenne							
Pioneer Memorial Hospital	Gen	Indiv	16	10	5	64	392
David City 2 272—Butler							
David City Hospital	Gen	NPAssn	18	11	8	189	722
Fairbury 6,304—Jefferson							
Fairbury Clinic and Hospital	Gen	Part	8	4	5	112	274
Fairbury Hospital	Gen	Indiv	40	18	12	194	760
Falls City 6 146—Richardson							
Our Lady of Perpetual Help Hospital	Gen	Church	27	19	8	209	905
Fort Crook —Sarpy							
Station Hospital	Gen	USAF	[illegible]	28	11	175	1 448
Fremont 11,862—Dodge							
Dodge County Community Hospital	Gen	County	75	45	20	621	2 144
Friend 1 169—Saline							
Warren Memorial Hospital	Gen	City	26	24	6	139	259
Genoa 1 231—Nance							
Emergency Hospital	Gen	Indiv	10	4	3	[illegible]8	329
Genoa Hospital	Gen	Indiv	12	5	3	61	104
Gordon 1 907—Sheridan							
Gordon Hospital	Gen	Part	14	9	6	139	620
Grand Island 19 130—Hall							
Grand Island Lutheran Hosp	Gen	Church	38	23	12	265	1 471
St Francis Hospital▲○	Gen	Church	150	135	24	628	4,942
Hastings 15 145—Adams							
Mary Lanning Memorial Hospital▲○	Gen	NPAssn	138	89	25	[illegible]	4 050
Hebron 1 909—Thayer							
Thayer County Memorial Hospital	Gen	Church	25	8	13	57	[illegible]
Holdrege 3 360—Phelps							
Brewster Hospital	Gen	Corp	61	20	15	244	1 435
Holdrege Hospital	Gen	Indiv	22	16	5	120	[illegible]60
Humboldt 1 386—Richardson							
Humboldt Hospital	Gen	Indiv	50	18	8	125	[illegible]16
Imperial 1 195—Chase							
Imperial Community Hosp	Gen	Corp	18	9	7	133	583
Ingleside 1 600—Adams							
Hastings State Hospital+▲○	Ment	State	1,800	1 752		[illegible]	523
Kearney 9 643—Buffalo							
Good Samaritan Hospital▲	Gen	Church	65	41	[illegible]0	604	2 652
Nebraska Hospital for the Tuberculous▲	TB	State	220	171			177
Lewellen 532—Garden							
Lewellen Community Hosp	Gen	NPAssn	16	11	4	82	537
Lexington 3 6[illegible]—Dawson							
Lexington Community Hosp	Gen	NPAssn	16	12	8	413	1 159
Lincoln 81 984—Lancaster							
Bryan Memorial Hosp ★▲○	Gen	Church	135	106	20	636	4 145
Dr Benj F Bailey Sanat	N&M	Corp	115	117			841
Lincoln General Hosp ★+▲○	Gen	NPAssn	183	107	40	1 028	6 430
Lincoln State Hospital▲	Ment	State	1 500	1 402			242
Nebraska Orthopedic Hosp +▲	Orth	State	110	51			785
St Elizabeth Hospital★+▲○	Gen	Church	220	179	30	1 429	[illegible]802
Veterans Admin Hospital+▲	Gen	Vet	500	[illegible]70			3 215
Loup City 1 675—Sherman							
Sacred Heart Hospital	Gen	Church	28	1[illegible]	10	199	[illegible]
Lynch 487—Boyd							
Sacred Heart Hospital	Gen	Church	22	15	8	136	597
McCook 6,212—Red Willow							
St Catherine of Sienna Hospital▲	Gen	Church	100	53	28	[illegible]	3 609
Nebraska City 7 330—Otoe							
St Mary's Hospital▲	Gen	Church	60	52	15	395	2 160
Norfolk 10 490—Madison							
Lutheran Hospital	Gen	Church	5[illegible]	44	20	512	2 026
Norfolk State Hospital+▲	Ment	State	1 150	1 190			209
Our Lady of Lourdes Hosp	Gen	Church	94	35	12	437	1 877
North Platte 12 429—Lincoln							
North Platte Memorial Hosp	Gen	Church	35	23	10	178	1 030
St Mary Hospital▲	Gen	Church	4	50	17	443	2 194
Oakland 1,380—Burt							
Oakland Community Hosp	Gen	Part	12	5	5	119	347
Oakland Memorial Hospital	Gen	Church	21		8	Estab	1950
Odell, 404—Gage							
Odell General Hospital	Gen	Indiv	11	6	5	65	316
Ogallala 3 159—Keith							
Ogallala Hospital	Gen	Indiv	16	8	7	164	405
Omaha 223 844—Douglas							
Bishop Clarkson Memorial Hospital★+▲○	Gen	Church	167	122	18	603	6 149
Children's Memorial Hosp ▲○	Chil	NPAssn	94	65	18		2,573
Creighton Memorial St. Joseph's Hospital★+▲○	Gen	Church	450	415	50	2 0[illegible]	13 125
Doctors Hospital	Gen	NPAssn	105	93	10	435	6 065
Douglas County Hospital▲○	Gen	County	350	292			3 901
Douglas County Psychiatric Hospital	Unit of Douglas County Hospital						
Immanuel Deaconess Institute★▲○	Gen	Church	123	99	30	1 0[illegible]2	4 [illegible]72

NEBRASKA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Lutheran Hospital+▲	Gen	Church	135	118	13	411	4,201
Nebraska Methodist Hospital★+▲○	Gen	Church	167	125	24	811	6 124
St Catherine's Hospital★▲○	Gen	Church	165	140	36	1,319	6,1[illegible]
University of Nebraska Hospital★+▲○	Gen	State	242	193	15	578	3,553
Osceola 1,039—Polk							
St Francis Hospital	Gen	Church	14	6	5	44	304
Osmond 796—Pierce							
St Joseph Hospital	Gen	Church	18	8	10	16[illegible]	446
Pawnee City, 1 647—Pawnee							
Pawnee County Hospital	Gen	County	25	18	8	139	[illegible]
Pender 1,135—Thurston							
Logan Valley Hospital	Gen	Indiv	14	9	6	190	[illegible]
Scottsbluff 12 057—Scotts Bluff							
St Mary Hospital	Gen	Church	41	40	15	557	2,[illegible]
West Nebraska Methodist Hospital▲○	Gen	Church	94	69	20	[illegible]	3 4[illegible]
Seward 2,826—Seward							
Seward Hospital	Gen	Indiv	10	8	6	166	[illegible]
Sidney 3,358—Cheyenne							
Roche Hospital	Gen	Part	30	13	10	201	[illegible]
Taylor Hospital	Gen	Indiv	17	14	10	211	840
Stratton 630—Hitchcock							
Dr Stewart's Private Hosp	Gen	Indiv	12	5	4	40	[illegible]
Stromsburg 1 127—Polk							
Stromsburg Hospital	Gen	Indiv	20	11	8	[illegible]	547
Stuart 760—Holt							
Clark Hospital	Gen	Indiv	17	7	3	40	179
Superior 2 650—Nuckolls							
Brodstone Memorial Hosp	Gen	NPAssn	24	16	8	151	775
Sutherland 869—Lincoln							
Sutherland Hospital	Gen	NPAssn	20	12	8	114	592
Tecumseh 2 104—Johnson							
Tecumseh Hospital	Gen	Indiv	13	8	8	120	403
Valentine 2,188—Cherry							
Valentine General Hospital	Gen	Indiv	25	15	7	201	1,351
Wahoo 2,648—Saunders							
Wahoo Community Hospital	Gen	Indiv	20	11	10	129	658
Wayne 2,719—Wayne							
Benthack Hospital	Gen	Indiv	25	11	8	136	581
Winnebago 800—Thurston							
Winnebago Indian Hospital	Gen	IA	54	22	9	82	676
York 5 383—York							
York General Hospital	Gen	NPAssn	46	32	12	369	1 792

Related Institutions

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Beatrice 10,883—Gage							
Beatrice State Home	MeDe	State	1 716	1 6[illegible]			118
Bridgeport 1 520—Morrill							
Morrill County Veterans Memorial Hospital	Gen	NPAssn	12		3	Estab	1949
Lincoln 81 984—Lancaster							
Nebraska State Penitentiary Hospital	Inst	State	20	8			[illegible]
Student Health Center	Inst	State	22	6			522
Milford 750—Seward							
Nebraska Industrial Home	Inst	State	11	[illegible]	8	66	[illegible]
Minden 1 845—Kearney							
Seeley Memorial Mercy Hosp	Gen	Church	16	8	8	181	[illegible]
Omaha 223 844—Douglas							
Booth Memorial Hospital	Mat	Church	45	39	25	110	14[illegible]
Bramwell Booth Convalescent Hospital	Conv	Church	55	[illegible]			[illegible]4
Hattie B Munroe Home for Convalescing Crippled Children	Orth	NPAssn	80	21			[illegible]
Orchard 493—Antelope							
Orchard Hospital	Gen	Indiv	10	1	3	29	[illegible]
Oshkosh 910—Garden							
Oshkosh Hospital	Gen	City	23	7	4	43	483
Plainview 1 411—Pierce							
Plainview General Hospital	Gen	NPAssn	10	6	[illegible]	153	[illegible]
Red Cloud 1 610—Webster							
Maynard Municipal Hospital	Gen	City	16	7	7	138	404
Spalding 830—Greeley							
St John Hospital	Gen	Church	9	4	5	73	25[illegible]
Wakefield 961—Dixon							
Wakefield Community Hosp	Gen	NPAssn	12	7	[illegible]	193	448
Walthill 1,204—Thurston							
Dr Picotte Memorial Hosp	Gen	Part	12	4	4	23	59
Westpoint 2,510—Cuming							
St Joseph's Home-Hosp	InstGen	Church	22	1[illegible]	6	3[illegible]0	[illegible]

NEVADA

Hospitals and Sanatoriums

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Boulder City 3 000—Clark							
Boulder City Hospital	Gen	Fed	23	12	[illegible]	12[illegible]	731
Caliente 1 800—Lincoln							
Lincoln County Hospital	Gen	County	27	10	7	43	[illegible]
East Ely 750—White Pine							
Steptoe Valley Hospital▲	Gen	NPAssn	35	13	7	116	[illegible]
Elko 4 094—Elko							
Elko General Hospital▲	Gen	County	50	25	12	[illegible]	[illegible]
Henderson 6 500—Clark							
Rose de Lima Hospital	Gen	Church	42	22	8	165	[illegible]
Las Vegas 8 422—Clark							
Las Vegas Hospital	Gen	Part	50	27	12	[illegible]	[illegible]
Owyhee 100—Elko							
Western Shoshone Hospital	Gen	IA	20	5	6	52	[illegible]

Key to symbols and abbreviations is on page 38

NEVADA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Reno, 21,317—Washoe							
Nevada State Hospital for Mental Diseases	Ment	State	370	365			110
St Mary's Hospital+▲	Gen	Church	90	73	20	700	3,741
Veterans Admin Center▲	Gen	Vet	125	118			1 436
Washoe Medical Center	Gen	County	205	172	18	565	4 644
Schurz, 100—Mineral							
Walker River Indian Hosp	Gen	IA	30	27	6	100	707
Winnemucca, 2,485—Humboldt							
Humboldt County General Hospital	Gen	County	63	No data supplied			

NEW HAMPSHIRE

Hospitals and Sanatoriums

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Berlin, 19,084—Coos							
St Louis Hospital▲○	Gen	Church	88	59	17	420	2,535
Claremont, 12 144—Sullivan							
Claremont General Hospital▲	Gen	NPAssn	52	36	16	405	2,066
Concord, 27,171—Merrimack							
Concord Hospital▲○	Gen	NPAssn	165	109	24	874	5 030
Margaret Pillsbury Hospital	Unit of Concord Hospital						
New Hampshire Memorial Hospital	Unit of Concord Hospital						
New Hampshire State Hospital+▲○	Ment	State	2 512	2,482			1,070
Pembroke Sanatorium	TB	Corp	47	50			56
Dover, 14 990—Strafford							
Wentworth Hospital▲○	Gen	City	69	49	15	450	2 084
East Derry, 300—Rockingham							
Alexander Eastman Hospital	Gen	NPAssn	21	12	6	187	655
Epping, 1,618—Rockingham							
Mitchell Memorial Hosp	InstGen	County	22	13			103
Exeter, 5 398—Rockingham							
Exeter Hospital▲	Gen	NPAssn	75	44	22	565	2,324
Franklin, 6,749—Merrimack							
Franklin Hospital▲	Gen	NPAssn	50	29	15	270	1,544
Glencliff, 200—Grafton							
New Hampshire State Sanat ▲	TB	State	88	83			78
Grasmere, 200—Hillsboro							
Hillsborough County General Hospital▲○	Gen	County	125	77	16	190	1,503
Hanover 3 425—Grafton							
Mary Hitchcock Memorial Hospital★+▲○	Gen	NPAssn	207	183	18	584	5 650
Keene, 13 832—Cheshire							
Elliot Community Hosp ▲○	Gen	NPAssn	116	63	28	655	2 892
Laconia, 13,484—Belknap							
Laconia Hospital▲○	Gen	NPAssn	124	85	25	405	3,456
Lancaster, 3 095—Coos							
Beatrice D Weeks Memorial Hospital	Gen	NPAssn	32	19	9	168	923
Lebanon, 7,590—Grafton							
Alice Peck Day Memorial Hospital	Gen	NPAssn	30	6	10	348	532
Littleton, 4 571—Grafton							
Littleton Hospital	Gen	NPAssn	50	22	10	227	939
Manchester, 77 685—Hillsboro							
Balch Hospital	Unit of Elliot Hospital						
Elliot Hospital+▲○	Gen	NPAssn	127	102	22	964	3,792
Notre Dame de Lourdes Hospital▲○	Gen	Church	100	82	22	762	4,008
Our Lady of Perpetual Help Maternity Hospital	Unit of Sacred Heart Hospital						
Sacred Heart Hospital▲○	Gen	Church	150	111	24	438	4 660
Nashua, 32 927—Hillsboro							
Nashua Memorial Hospital▲○	Gen	NPAssn	84	78	16	626	3 268
St Joseph's Hospital▲○	Gen	Church	100	79	20	624	2,837
New London, 1,039—Merrimack							
New London Hospital	Gen	NPAssn	25	14	6	81	607
Newport, 5,304—Sullivan							
Carrie F Wright Hospital	Gen	NPAssn	26	15	10	135	674
North Conway, 900—Carroll							
Memorial Hospital	Gen	NPAssn	35	27	12	211	913
Peterborough, 2,470—Hillsboro							
Monadnock Community Hospital▲	Gen	NPAssn	36	30	10	277	1,558
Plymouth, 2,533—Grafton							
Sceva Speare Memorial Hosp	Gen	NPAssn	34	24	8	183	1,020
Portsmouth, 14,821—Rockingham							
Portsmouth Hospital▲	Gen	NPAssn	109	53	28	627	3,013
U S Naval Hospital▲	Gen	Navy	150	69	10	185	1,775
Rochester 12 012—Strafford							
Frisbie Memorial Hospital▲	Gen	NPAssn	60	50	20	756	2,979
West Stewartstown, 350—Coos							
Coos County Hospital	Gen	County	35	28	10	172	1,015
Whitefield, 1,834—Coos							
Morrison Hospital	Gen	City	35	14	6	40	302
Wolfeboro, 2 630—Carroll							
Huggins Hospital▲	Gen	NPAssn	36	30	7	162	1 116
Woodsville, 1,000—Grafton							
Cottage Hospital	Gen	NPAssn	25	20	10	210	1,857
Grafton County Hospital	InstGen	County	30	18	4	4	80

Related Institutions

Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Exeter, 5,398—Rockingham							
Lamont Infirmary	Inst	NPAssn	54	7			909
Laconia 13,484—Belknap							
Laconia State School	MeDe	State	746	733			60
Manchester, 77,685—Hillsboro							
Manchester Isolation Hosp	Iso	City	60	5			46

NEW JERSEY

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Allentown, 700—Monmouth							
Dr Farmer's Private Hosp	Gen	Indiv	40	20	10	109	838
Allenwood, 150—Monmouth							
Allenwood Sanatorium (Monmouth County Hospital for Tuberculosis)▲	TB	County	100	104			136
Atlantic City, 64,094—Atlantic							
Atlantic City Hospital★+▲○	Gen	NPAssn	268	183	40	1 629	8,206
Children's Seashore House at Atlantic City for Invalid Children	Orth	NPAssn	74	68			221
Bayonne, 79,198—Hudson							
Bayonne Hospital and Dispensary★+▲○	Gen	NPAssn	250	168	30	1,112	7,375
Swiney Sanatorium	Gen	Part	15	8	8	141	485
Bellemead, 51—Somerset							
Belle Mead Sanatorium	N&M	Corp	65	51			85
Belleville 28 167—Essex							
Essex County Hospital for Contagious Diseases+▲○	IsoTb	County	360	87		..	2,061
Blackwood, 2,000—Camden							
Camden County General Hospital▲	Gen	County	250	155			832
Camden County Hospital for Mental Diseases	Ment	County	800	775			500
Camden County Tuberculosis Hospital	TB	County	180	150			153
Bound Brook, 7 616—Somerset							
Bound Brook Hospital▲	Gen	NPAssn	35	15	10	67	528
Bridgeton, 15,992—Cumberland							
Bridgeton Hospital	Gen	NPAssn	94	51	21	903	2,972
Ivy Hall Sanitarium	Conv	NPAssn	45	35			125
Browns Mills, 600—Burlington							
Deborah Tuberculosis Sanatorium▲	TB	NPAssn	117	108			99
Camden, 117 536—Camden							
Camden General Hospital	Gen	NPAssn	20	12	10	277	975
Cooper Hospital★+▲○	Gen	NPAssn	380	317	95	3,174	11,476
Municipal Hospital for Contagious Diseases	Iso	City	90	14			278
West Jersey Hospital★+▲○	Gen	NPAssn	279	230	50	1,979	10 370
Cedar Grove, 2,000—Essex							
Essex County Overbrook Hospital+▲○	Ment	County	2,724	2 608			877
Dover 10 491—Morris							
Dover General Hospital▲	Gen	NPAssn	109	78	26	814	3,456
East Orange, 68,945—Essex							
East Orange General Hospital★▲○	Gen	NPAssn	110	91	31	790	4,027
Elizabeth 109 912—Union							
Alexian Brothers Hospital▲	Gen	Church	168	115			2 815
Elizabeth General Hospital and Dispensary★▲○	Gen	NPAssn	202	141	40	1 819	6 673
St Elizabeth Hospital★▲○	Gen	Church	220	170	45	1 585	7,208
Englewood, 18 966—Bergen							
Englewood Hospital★+▲○	Gen	NPAssn	190	152	48	1 897	6 518
Fort Dix, 1 000—Burlington							
Station Hospital▲	Gen	Army	576	707	24	637	10,877
Fort Monmouth,—Monmouth							
Station Hospital▲	Gen	Army	250	142	16	459	5,162
Franklin, 4,009—Sussex							
Franklin Hospital▲	Gen	NPAssn	37	23	7	276	1 156
Glen Gardner, 536—Hunterdon							
New Jersey Sanatorium for Tuberculous Diseases+▲	TB	State	320	282			270
Greystone Park,—Morris							
New Jersey State Hosp +▲○	Ment	State	5,859	5 693			1,887
Hackensack, 26,270—Bergen							
Hackensack Hospital★+▲○	Gen	NPAssn	250	208	50	2,257	11,893
Hasbrouck Heights, 6,716—Bergen							
Hasbrouck Heights Hospital▲	Orth	NPAssn	26	23			965
Hoboken, 50,115—Hudson							
St Mary s Hospital▲○	Gen	Church	420	234	30	871	6,665
Irvington, 55,328—Essex							
Irvington General Hospital▲	Gen	City	115	76	20	591	3,636
Jersey City, 301,173—Hudson							
Berthold S Pollak Hospital for Chest Diseases+▲	TB	County	500	378			741
Christ Hospital★▲○	Gen	Church	221	181	32	1,008	6 063
Fairmount Hospital	Gen	NPAssn	59	45	15	212	1,639
Greenville Hospital▲○	Gen	NPAssn	60	50	16	196	1 045
Jersey City Hospital★+▲○	Gen	City	1,600	1,133			24,331
Margaret Hague Maternity Hospital+▲○	Mat	County	345	235	385	8 892	11 069
St Francis Hospital▲○	Gen	Church	220	120			4 073
Kearny (Arlington P O), 39 467—Hudson							
West Hudson Hospital▲	Gen	NPAssn	60	44	20	486	2,464
Lakehurst, 827—Ocean							
U S Naval Air Station Dispensary	Gen	Navy	33	6	14	124	638
Lakewood, 8,000—Ocean							
Paul Kimball Hospital▲	Gen	NPAssn	62	55	12	495	2 769
Long Branch, 17,408—Monmouth							
Dr E O Hazard Hospital	Gen	NPAssn	50	28	6	216	987
Monmouth Memorial Hospital★+▲○	Gen	NPAssn	253	203	53	1,651	7 645
Lyons, 3,000—Somerset							
Veterans Admin Hospital+▲○	Ment	Vet	2,522	2,460			1 039
Marlboro, 500—Monmouth							
New Jersey State Hosp +▲○	Ment	State	2,960	2 853			1,182
Metuchen, 6,557—Middlesex							
Roosevelt Hospital▲	TB	County	221	205			325

Key to symbols and abbreviations is on page 38

NEW JERSEY—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Millville 14 806—Cumberland							
Millville Hospital	Gen	NPAssn	56	34	14	308	1 708
Montclair 39 807—Essex							
Montclair Community Hosp ▲	Gen	NPAssn	54	38	15	433	1,946
Mountainside Hospital★+▲○	Gen	NPAssn	304	216	61	1 606	7,901
St Vincent's Hospital▲	Gen	Church	55	43	12	387	1 777
Morris Plains 2 018—Morris							
Children's Heart Unit of Victoria Foundation	Card	NPAssn	24	20			50
Morristown 15,270—Morris							
All Souls Hospital★▲○	Gen	Church	123	86	36	955	3,559
Aurora Institute	Conv	Corp	90	39			895
Morristown Memorial Hospital★▲	Gen	NPAssn	122	82	18	554	3 708
Shonghum Mountain Sanat	TB	County	70	53			58
Mount Holly 6 573—Burlington							
Burlington County Hosp +▲	Gen	NPAssn	121	73	18	953	3,067
Neptune 2 392—Monmouth							
Fitkin Memorial Hosp ★+▲○	Gen	NPAssn	254	193	56	1 370	7,237
Newark 429 760—Essex							
American Legion Memorial Hospital	Gen	NPAssn	39	24	15	274	1,387
Babies Hospital—Colt Memorial+▲	Chil	NPAssn	85	38	7		2 635
Columbus Hospital▲	Gen	NPAssn	75	51	35	1,100	8,379
Community Hospital▲	Gen	NPAssn	20	10	6	124	491
Hospital for Crippled Children+▲	Orth	NPAssn	95	53			798
Hospital of St Barnabas and for Women and Children★+▲○	Gen	Church	211	170	44	1,560	[illegible] 061
Lutheran Memorial Hospital▲○	Gen	NPAssn	121	80	21	431	3 404
Newark Beth Israel Hospital★+▲○	Gen	NPAssn	365	284	76	2,820	11,501
Newark City Hospital★+▲○	Gen	City	700	617	40	1,587	12 525
Newark Eye and Ear Infirmary+▲	ENT	NPAssn	65	36			2,703
Presbyterian Hospital+▲○	Gen	NPAssn	275	218	65	1 8[illegible]9	9 489
St James Hospital▲○	Gen	Church	125	94	21	490	3 787
St Michael's Hospital★+▲○	Gen	Church	405	312	75	2,065	11 482
New Brunswick 33 180—Middlesex							
Middlesex General Hosp ▲○	Gen	NPAssn	115	86	25	971	3,810
St Peter's General Hospital★+▲○	Gen	Church	188	143	45	1 715	7 966
Station Hospital	Gen	Army	350	309	18	236	7 017
New Lisbon 213—Burlington							
Marcus W Newcomb Hospital for Chest Diseases	TB	County	112	87			93
Newton 5 533—Sussex							
Newton Memorial Hosp ▲	Gen	NPAssn	41	37	9	505	1,803
Northfield 2 848—Atlantic							
Atlantic County Hospital for Mental Diseases	Ment	County	475	327			132
Atlantic County Hospital for Tuberculous Diseases▲	TB	County	86	50			69
Orange 35 717—Essex							
New Jersey Orthopaedic Hospital+▲	Orth	NPAssn	41	36			761
Orange Memorial Hosp ★+▲○	Gen	NPAssn	390	245	85	1,847	9,543
St Mary's Hospital▲○	Gen	Church	140	90	40	732	8,830
Passaic, 61 394—Passaic							
Beth Israel Hospital▲	Gen	NPAssn	77	46	22	501	2,473
Passaic General Hosp ★+▲○	Gen	NPAssn	247	167	60	1 965	7,270
St Mary Hospital★▲○	Gen	Church	190	150	50	1 456	6 373
Paterson 139 656—Passaic							
Hope Dell Hospital▲	Chr	County	425	135			91
Nathan and Miriam Barnert Memorial Hospital★▲○	Gen	NPAssn	121	91	29	988	3,951
Paterson General Hosp ★+▲○	Gen	NPAssn	372	227	84	2,354	9 098
St Joseph Hospital★+▲○	Gen	Church	365	292	57	1 030	8,395
Valley View Sanatorium▲	TB	County	290	222			219
Perth Amboy 41,242—Middlesex							
Perth Amboy General Hospital★▲○	Gen	NPAssn	229	164	45	1 435	7 753
Phillipsburg 18 314—Warren							
Warren Hospital	Gen	NPAssn	100	85	25	800	4 396
Plainfield 37 469—Union							
Muhlenberg Hospital★+▲○	Gen	NPAssn	270	218	60	2 566	9 306
Point Pleasant 2 082—Ocean							
Point Pleasant Hospital▲	Gen	NPAssn	45	33	10	280	1 283
Princeton 7 719—Mercer							
Isabella McCosh Infirmary of Princeton University	Inst	NPAssn	55	12			852
Princeton Hospital▲	Gen	NPAssn	89	62	15	592	2 098
Rahway 17 498—Union							
New Jersey State Prison Farm	Inst	State	15	6			816
Rahway Hospital▲	Gen	NPAssn	80	59	20	513	2 406
Red Bank 10 974—Monmouth							
Riverview Hospital	Gen	NPAssn	39	37	15	402	1 832
Ridgewood 14,948—Bergen							
Bergen Pines Bergen County Hospital+▲	TbIso	County	308	204			575
Riverside 4 000—Burlington							
Zurbrugg Memorial Hosp ▲	Gen	NPAssn	37	23	18	401	1,595
Salem 8 618—Salem							
Salem County Memorial Hospital	Gen	County	48	37	18	671	1,950
Scotch Plains 3 500—Union							
Bonnie Burn Sanatorium▲	TB	County	328	263			250
Secaucus 9,754—Hudson							
Hudson County Contagious Disease Hospital▲	Iso	County	150	13			319
Hudson County General Hospital	InstGen	County	210	185			113
Hudson County Hospital for Mental Diseases▲	Ment	County	2 094	1 858			458
Skillman 23—Somerset							
New Jersey State Village for Epileptics	Epil	State	1 500	1 463			102
Somers Point 1 992—Atlantic							
Shore Memorial Hospital▲	Gen	NPAssn	65	40	14	[illegible]	1 952
Somerville 8 720—Somerset							
Somerset Hospital▲○	Gen	NPAssn	150	114	40	1,567	6 044
South Amboy 7 802—Middlesex							
South Amboy Memorial Hospital	Gen	NPAssn	35	30	18	492	1 721
Summit, 16 165—Union							
Fair Oaks Sanatorium	N&M	Corp	52	40			322
Overlook Hospital★▲○	Gen	NPAssn	145	125	41	1 050	4 498
Sussex 1 478—Sussex							
Alexander Linn Hospital	Gen	NPAssn	25	17	5	155	776
Teaneck, 25,275—Bergen							
Holy Name Hospital★▲○	Gen	Church	182	170	50	1 664	5 739
Trenton, 124 697—Mercer							
F W Donnelly Memorial Hospitals	TbIso	City	400	352			391
Glenwood Sanitarium	N&M	Indiv	26	22			132
Mercer Hospital★+▲○	Gen	NPAssn	246	176	46	2 018	7 655
New Jersey State Hosp +▲⊙	Ment	State	3 600	3,524			1,382
New Jersey State Prison Hospital▲	Inst	State	43	36			948
Orthopaedic Hospital and Dispensary+▲	Orth	NPAssn	45	36			307
St Francis Hospital★+▲○	Gen	Church	300	211	33	1 439	8,370
Trenton General Hospital	Gen	NPAssn	54	27	14	257	1 139
William McKinley Memorial Hospital★▲○	Gen	NPAssn	118	95	18	1 141	4 163
Verona 8,957—Essex							
Essex County Sanatorium+▲	TB	County	444	373			483
Vineland 7 914—Cumberland							
Newcomb Hospital+▲	Gen	NPAssn	93	56	32	629	2 783
Weehawken (Union City P O) 14,363—Hudson							
North Hudson Hospital★▲	Gen	NPAssn	166	81	25	396	3 032
Westfield 18 458—Union							
Children's Country Home▲	Orth	NPAssn	30	25			35
Woodbury 8 806—Gloucester							
Underwood Hospital▲	Gen	NPAssn	70	56	30	945	3 105
Wyckoff 500—Bergen							
Christian Sanatorium	N&M	NPAssn	185	155			153
Related Institutions							
Atlantic City 64 094—Atlantic							
Municipal Hospital	Iso	City	64				
Caldwell, 4,932—Essex							
Theresa Grotta Home for Convalescents	Conv	NPAssn	35	22			265
Far Hills 574—Somerset							
Kate Macy Ladd Convalescent Home	Conv	NPAssn	50			Estab	1949
Farmingdale 609—Monmouth							
Tuberculosis Preventorium for Children	TB	NPAssn	250	151			371
Haddonfield 9 742—Camden							
Bancroft School	MeDe	NPAssn	100	89			
Jamesburg 2,128—Middlesex							
New Jersey State Home for Boys	Inst	State	25	12			714
Jersey City 301,173—Hudson							
Salvation Army Door-of Hope Home and Hospital	Mat	Church	53	27	6	[illegible]	145
Little Falls 3 000—Passaic							
North Jersey Training School	MeDe	State	57	39			1 015
Longport 303—Atlantic							
Betty Bachrach Home for Afflicted Children	Orth	NPAssn	100	60			110
Menlo Park 400—Middlesex							
New Jersey Home for Disabled Soldiers	Inst	State	81	81			35
Metuchen 6 557—Middlesex							
Middlesex Nursing Home	Conv	Corp	60	58			170
Newark 429 760—Essex							
Florence Crittenton Home	Mat	NPAssn	[illegible]	No data supplied			
Ivy Haven	Inst	City	[illegible]	79			105
Newark Convalescent Hosp	Conv	City	150	1			[illegible]
New Brunswick 33 180—Middlesex							
Mary Kingsland Macy Willets Infirmary	Inst	NPAssn	22	1			[illegible]
Middlesex County Hospital for Infantile Paralysis	Orth	NPAssn	24	20			2
Rutgers University Infirmary	Inst	NPAssn	13	[illegible]			194
New Lisbon 213—Burlington							
Burlington County Mental Hospital	Ment	County	300	[illegible]			51
New Jersey State Colony	MeDe	State	909	861			[illegible]
Park Ridge 2,519—Bergen							
Meyers Sanitarium	ChrCancer	Indiv	73	65			[illegible]
Paterson 139 656—Passaic							
Paterson City Hospital	ChrIso	City	110	[illegible]			[illegible]

Key to symbols and abbreviations is on page 38

NEW JERSEY—Continued

Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Roseland, 1,556—Essex							
Mountain View Rest	N&M	Corp	20	20			5
Sea Isle City, 773—Cape May							
Sea Isle Hospital and Training School	McDe	Corp	60	42			15
Trenton, 124,697—Mercer							
State Home for Girls	Inst	State	70	57	3	20	254
Upper Montclair, 10,000—Essex							
Montclair Sanitarium	Conv	Part	10	7			16
Vineland, 7,014—Cumberland							
New Jersey Memorial Home for Disabled Soldiers, Sailors Marines and Their Wives and Widows	Inst	State	65	No data supplied			
Training School at Vineland (Chandler Hospital)	McDe	NPAssn	40	12			367
Vineland State School	McDe	State	1,708	[illegible]			148
Westfield, 18,458—Union							
Brookside Nursing Home	Conv	Indiv	30	29			17
West Orange, 25,662—Essex							
Kessler Institute for Rehabilitation	Conv	NPAssn	25			Estab 1949	
Woodbine 2,111—Cape May							
Woodbine Colony for Feebleminded Males	McDe	State	950	910			[illegible]

NEW MEXICO

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Alamogordo 950—Otero							
Gerald D Champion Memorial Hospital	Gen	County	24	[illegible]	9	Estab 1949	
Albuquerque, 35,449—Bernalillo							
Albuquerque Indian Hosp ▲	Gen	IA	60	50	8	182	1,850
Albuquerque Indian Sanat ▲	TB	IA	100	97			224
Atchison, Topeka and Santa Fe Hospital	Indus	NPAssn	62	48			966
Methodist Sanatorium	TB	Church	65	50			37
Nazareth Sanatorium	N&M	Church	40	19			247
St Joseph Sanatorium and Hospital▲○	GenTb	Church	197	161	44	1,450	5,570
Southwestern Presbyterian Sanatorium▲	GenTb	Church	158	127	22	861	499
Veterans Admin Hospital+▲	Gen	Vet	291	274			2 505
Artesia 4,071—Eddy							
Artesia Municipal Hospital	Gen	Church	40	17	12	273	1 266
Black Rock (Zuni P O), 55—McKinley							
Zuni Indian Hospital	Gen	IA	4	18	8	62	752
Carlsbad, 7,116—Eddy							
Carlsbad Memorial Hospital	Gen	NPAssn	28	19	9	250	1,753
St Francis Xavier Hospital	Gen	Church	[illegible]	38	12	521	2 472
Clayton 188—Union							
St Joseph Hospital	Gen	Church	25	9	8	96	404
Clovis, 10,065—Curry							
Clovis Memorial Hospital	Gen	City	67	[illegible]	12	644	3 558
Crownpoint 90—McKinley							
Eastern Navajo Hospital	Gen	IA	35	35	10	139	1 447
Embudo 6—Rio Arriba							
Embudo Presbyterian Hosp	Gen	Church	25	16	12	214	587
Espanola 612—Rio Arriba							
Espanola Hospital	Gen	Church	30	19	15	376	1,238
Eunice 1,227—Lea							
Barzune Hospital	Gen	Indiv	9	3	3	81	392
Farmington, 2,161—San Juan							
San Juan Episcopal Indian Mission Hospital	Gen	Church	22	17	5	138	385
San Juan Hospital	Gen	NPAssn	17	11	8	100	587
Fort Bayard, 750—Grant							
Veterans Admin Hospital▲	TB	Vet	223	192			709
Fort Stanton, 400—Lincoln							
U S Marine Hospital▲	TB	USPHS	237	173			219
Gallup 7,041—McKinley							
St Mary's Hospital▲	Gen	Church	82	30	16	259	1,704
Hobbs, 10,619—Lea							
Hobbs General Hospital	Gen	Indiv	21	14	9	537	1,680
Hot Springs, 2,940—Sierra							
Carrie Tingley Hospital for Crippled Children+▲	Orth	State	100	60			358
St Ann's Hospital	Gen	Church	34	10	6	66	681
Las Vegas, 6,941—San Miguel							
Las Vegas Hospital	Gen	NPAssn	42	20	8	119	1,202
New Mexico State Hospital	Ment	State	1,037	1,012			222
St Anthony's Hospital	Gen	Church	65	38	15	304	2,467
Los Alamos, 100—Sandoval							
Los Alamos Hospital▲	Gen	NPAssn	84	29	11	207	1,821
Mescalero, 200—Otero							
Mescalero Apache Indian Hospital	Gen	IA	32	19	4	36	748
Portales, 5,104—Roosevelt							
Lehman Hospital	Gen	Indiv	10	4	4	180	420
Raton, 7,607—Colfax							
New Mexico Miners' Hosp ▲	Gen	State	33	23	11	312	1,588
Rehoboth, 150—McKinley							
Rehoboth Mission Hospital	Gen	Church	30	17	10	168	707
Roswell, 13,482—Chaves							
St Mary's Hospital▲	Gen	Church	90	73	20	1,257	4,095
Station Hospital▲	Gen	USAF	125	20			1,082
Santa Fe, 20,325—Santa Fe							
St Vincent Hospital▲○	GenTb	Church	75	52	15	625	3,171
Santa Fe Indian Hospital	Gen	IA	56	[illegible]	6	89	1,023

NEW MEXICO—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Santa Rita, 2,000—Grant							
Santa Rita Hospital	Gen	NPAssn	45	16	10	161	1 153
Shiprock, 125—San Juan							
Northern Navajo Hospital	Gen	IA	43	35	5	103	1,573
Silver City, 6,044—Grant							
Grant County General Hosp	Gen	CyCo	54		10	Estab 1949	
Socorro 3,712—Socorro							
State Tuberculosis Sanat	TB	State	150	103			141
Taos 965—Taos							
Holy Cross Hospital	Gen	Church	30	14	10	123	855
Valmora, 125—Mora							
Valmora Sanatorium	TB	NPAssn	75	31	1	1	131

Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Albuquerque, 35,449—Bernalillo							
Lodge of the Turquoise Trail	N&M	Indiv	7	7			34
Sandia Ranch Sanatorium	N&M	Indiv	20	5			40
Los Lunas, 980—Valencia							
Los Lunas Mental Hospital	McDe	State	120	96			21
Taos, 965—Taos							
Taos Indian Hospital	Gen	IA	17	4	3		135

NEW YORK

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Albany, 130,577—Albany							
Albany Hospital★+▲○	GenTb	NPAssn	541	561	30	1,067	15,296
Anthony N Brady Maternity Home+▲○	Mat	Church	70	51	86	2,374	2 809
Child's Hospital	Chil	Church	65	30			1,145
Memorial Hospital★+▲○	Gen	NPAssn	137	125	20	549	3,748
St Peter's Hospital★▲○	Gen	Church	275	165			5,691
Albion, 4,660—Orleans							
Arnold Gregory Memorial Hospital	Gen	NPAssn	24	16	11	283	991
Amityville, 5,058—Suffolk							
Brunswick General Hospital	Gen	Corp	91	41	23	649	2,553
Louden Knickerbocker Hall	N&M	Corp	175	158			265
South Oaks, Long Island Home+	N&M	Corp	220	190			526
Amsterdam, 33,329—Montgomery							
Amsterdam City Hosp ▲○	Gen	NPAssn	110	83	20	413	3 620
St Mary's Hospital▲○	Gen	Church	120	110	22	715	3,545
Auburn, 35,753—Cayuga							
Auburn City Hosp ★▲○	Gen	NPAssn	238	161	47	1,165	7 087
Home for Convalescent and Crippled Children	Unit of Auburn City Hospital						
Mercy Hospital▲	Gen	Church	95	68	14	408	2,840
Ballston Spa, 4,448—Saratoga							
Benedict Memorial Hospital	Gen	NPAssn	22	22	11	167	1 033
Batavia, 17,267—Genesee							
Genesee Memorial Hospital▲	Gen	NPAssn	71	57	17	630	2,046
St Jerome Hospital▲	Gen	Church	80	60	18	526	2,098
Veterans Admin Hospital+▲	Gen	Vet	294	231			2 848
Bath, 4,696—Steuben							
Bath Memorial Hospital▲	Gen	NPAssn	60	51	10	444	1,778
Veterans Admin Center+▲	Gen	Vet	466	407			3,175
Bay Shore, 10,000—Suffolk							
Dr King's Hospital	Gen	Indiv	35	14	8	149	514
Southside Hospital▲	Gen	NPAssn	94	82	24	1 407	4 800
Beacon, 12,572—Dutchess							
Craig House+	N&M	Corp	80	47			74
Highland Hospital	Gen	NPAssn	46	32	11	259	1,309
Matteawan State Hosp +▲	Ment	State	1,700	1 644			176
Bedford Hills, 2,000—Westchester							
Montefiore Hospital Country Sanatorium+▲	TB	NPAssn	230	217			259
Bellerose, 1,817—Queens							
Hillside Hospital+	N&M	NPAssn	170	91			310
Binghamton, 78,309—Broome							
Binghamton City Hosp ★+▲○	Gen	City	464	355	36	1,186	10 537
Binghampton State Hosp +▲○	Ment	State	2 602	2 700			866
Our Lady of Lourdes Memorial Hospital▲	Gen	Church	68	60	22	1,038	3,106
Brentwood, 495—Suffolk							
Pilgrim State Hospital	See West Brentwood						
Ross Sanitarium	Conv	Indiv	100	89			130
Brockport, 3,590—Monroe							
Lakeside Memorial Hospital	Gen	NPAssn	15	12	6	289	631
Bronxville, 6,888—Westchester							
Lawrence Hospital▲	Gen	NPAssn	104	83	20	802	3,630
Brooklyn, 2,698,285—Kings							
Adelphi Hospital	Gen	NPAssn	160	141	50	849	5,415
Bay Ridge Hospital▲	Gen	Corp	83	67	34	1 451	3 324
Beth El Hospital★+▲	Gen	NPAssn	242	188	100	3,708	8,203
Beth Moses Hospital★+▲	See Maimonides Hospital						
Brooklyn Cancer Inst +▲	Cancer	City	77	83			699
Brooklyn Doctors Hospital	Gen	Corp	88	56	44	1,487	3 307
Brooklyn Eye and Ear Hospital+▲	ENT	NPAssn	137	86			9,137
Brooklyn Hebrew Home and Hospital for the Aged	Chr	NPAssn	704	651			234
Brooklyn Hospital★+▲○	Gen	NPAssn	332	291	55	1,706	9 093
Brooklyn State Hosp +▲○	Ment	State	3,428	3,452			1,602
Brooklyn Thoracic Hosp ▲	TB	NPAssn	125	75			[illegible]
Brooklyn Womens Hosp+	ObGyn	NPAssn	43	34	46	1,515	1,852
Bushwick Hospital▲○	Gen	NPAssn	101	80	26	1 045	3,824
Caledonian Hospital▲	Gen	NPAssn	100	80	30	883	3,780

Key to symbols and abbreviations is on page 38

NEW YORK—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Carson C Peck Memorial Hospital▲	Gen	NPAssn	107	69	39	1 393	3 167
Coney Island Hospital*+▲	Gen	City	270	234	30	932	5,928
Crown Heights Hospital	Gen	Corp	144	124	31	1 916	4 844
Cumberland Hospital*+▲	Gen	City	2[illegible]4	266	34	1,573	7,039
Evangelical Deaconess Hosp	Gen	Church	94	65	36	1 153	3 185
Fort Hamilton Station Hosp	Gen	Army	103	40	4	2	2 264
Greenpoint Hospital*+▲	Gen	City	296	247	32	1 411	6 [illegible]0
Harbor Hospital	Gen	NPAssn	77	56			1 58[illegible]
Hospital of the Holy Family▲	Gen	Church	120	93			2 [illegible]42
House of St Giles the Cripple+▲	Orth	Church	44	39			150
Israel Zion Hospital*+▲○	See Maimonides Hospital						
Jewish Hospital*+▲○	Gen	NPAssn	500	490	135	4 605	15 465
Jewish Sanitarium and Hospital for Chronic Diseases+▲	Chr	NPAssn	541	531			126
Kings County Hosp *+▲○	Gen	City	2,500	2 6[illegible]1	90	3 7[illegible]	63 496
Kingston Avenue Hosp +▲○	IsoTb	City	415	348			3 723
Long Island College Hospital*+▲○	Gen	NPAssn	364	284	47	1 789	10,9[illegible]5
Lutheran Hospital▲	Gen	Church	110	[illegible]	28	787	4 052
Madison Park Hospital	Gen	Corp	167	[illegible]	37	1,873	4 178
Maimonides Hospital*+▲○	Gen	NPAssn	500	389	120	4,380	13 058
Methodist Hospital*+▲○	Gen	Church	456	296	84	2 257	9 [illegible]81
Midwood Hospital▲	Gen	Corp	58	47	21	780	2 447
Norwegian Lutheran Deaconesses Home and Hosp *+▲○	Gen	Church	210	158	53	1 725	7 302
Prospect Heights Hosp ▲○	Gen	NPAssn	159	113	39	1,221	5 491
St. Catherine s Hosp *+▲○	Gen	Church	287	205	57	1 753	7 4[illegible]4
St Charles Hospital Orthopedic Clinic+▲	Orth	Church	60	50			241
St John s Hosp *+▲○	Gen	Church	230	150	32	854	4,802
St Mary s Hospital*+▲○	Gen	Church	237	181	63	1 723	6,192
St Peter s Hospital*▲	Gen	Church	179	118	36	632	3,053
Samaritan Hospital	Gen	Church	85	48	27	1,020	2,397
Shore Road Hospital	Gen	Corp	80	42	20	1,138	3 141
Swedish Hospital	Gen	NPAssn	93	60	20	580	2,532
Unity Hospital*+	Gen	NPAssn	226	123	57	2 010	6 516
Veterans Admin Hospital▲	Gen	Vet	400	316			2,031
Victory Memorial Hospital	Gen	NPAssn	53	42	23	652	1,978
Wade Hospital	Gen	Indiv	20	7			262
Wyckoff Heights Hosp *+▲	Gen	NPAssn	160	1[illegible]9	23	1,007	5 705
Buffalo 575 901—Erie							
Allied Hospitals of the Sisters of Charity							
Emergency Hospital+▲	Gen	Church	172	137			4 739
Louise de Marillac Hosp ▲	Unit of Sisters of Charity Hospital						
Sisters of Charity Hosp *+▲○	Gen	Church	376	293	100	3,567	11 753
Buffalo Columbus Hospital	Gen	NPAssn	108	94	12	517	3 764
Buffalo Eye and Ear Hospital and Wettlaufer Clinic	ENT	NPAssn	14	9			779
Buffalo General Hosp *+▲○	Gen	NPAssn	448	431	50	1,291	11,558
Buffalo State Hospital+▲⊖	Ment	State	3 159	3 [illegible]15			803
Children s Hospital+▲○	MatCh	NPAssn	270	257	73	2,541	10,583
Deaconess Hospital*+▲○	Gen	NPAssn	277	221	62	1 751	9 491
Edward J Meyer Memorial Hospital *+▲○	GenTb	County	858	770	23	931	10 609
Emergency Hospital+▲	See Allied Hospitals of the Sisters of Charity						
Lafayette General Hospital	Gen	NPAssn	63	30	10	218	1 648
Louise de Marillac Hospital▲	See Allied Hospitals of the Sisters of Charity						
Mercy Hospital*▲○	Gen	Church	300	223	60	2,111	8 421
Millard Fillmore Hosp *+▲○	Gen	NPAssn	478	355	107	3,929	14 106
Roswell Park Memorial Institute+▲	Cancer	State	110	96			2 041
St. Francis Hospital▲	Gen	Church	53	38			1,828
Sisters of Charity Hosp *+▲○	See Allied Hospitals of the Sisters of Charity						
Veterans Admin Hospital	Gen	Vet	1 000			Estab	1950
Callicoon 850—Sullivan							
Callicoon Hospital	Gen	Part	19	18	4	171	576
Cambridge, 1572—Washington							
Mary McClellan Hosp +▲○	Gen	NPAssn	100	55	15	242	1 093
Canandaigua 8,321—Ontario							
Brigham Hall Hospital	N&M	Corp	79	64			161
Frederick Ferris Thompson Hospital▲	Gen	NPAssn	102	80	23	600	3 169
Veterans Admin. Hospital+▲	Ment	Vet	1,704	1 628			371
Cassadaga 514—Chautauqua							
Newton Memorial Hosp ▲	TB	County	163	125			110
Castle Point, 23—Dutchess							
Veterans Admin Hosp +▲	TB	Vet	605	577			553
Catskill, 5 429—Greene							
Memorial Hospital of Greene County▲	Gen	StateCo	79	52	15	515	2 492
Central Islip, 2 000—Suffolk							
Central Islip State Hosp+▲○	Ment	State	8,347	8,093			1,271
Central Valley 1,049—Orange							
Falkirk in the Ramapos	N&M	Indiv	40	23			16
Chatham 2,254—Columbia							
Chatham Community Hospital and Sanitarium	Gen	Part	23		6		
Chenango Bridge 400—Broome							
Broome County Tuberculosis Hospital▲	TB	County	95	91			85
Clifton Springs 1,413—Ontario							
Clifton Springs Sanitarium and Clinic+▲	Gen	NPAssn	275	140	12	[illegible]40	3 445
Cohoes, 21,955—Albany							
Cohoes Hospital	Gen	NPAssn	61	45	12	32[illegible]	1 730

NEW YORK—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Cold Spring 1,897—Putnam							
Julia L Butterfield Memorial Hospital	Gen	NPAssn	45	15	5	122	[illegible]
Cooperstown 2 5[illegible]—Otsego							
Mary Imogene Bassett Hospital*+▲	Gen	NPAssn	75	67	[illegible]0	4[illegible]2	[illegible]
Copiague 2 000—Suffolk							
Nassau Suffolk General Hosp	Gen	Corp	40	22	4	20[illegible]	1,[illegible]
Corning 16,21[illegible]—Steuben							
Corning Hospital▲	Gen	NPAssn	103	78	[illegible]6	[illegible]	4 170
Cornwall 1,978—Orange							
Cornwall Hospital▲	Gen	NPAssn	65	32	15	34[illegible]	1,571
Cortland 15,881—Cortland							
Cortland County Hosp ▲	Gen	NPAssn	150	109	26	7[illegible]	3 [illegible]
VerNooy Sanitarium	Gen	Indiv	18	12	7	310	692
Croton on Hudson 3,843—Westchester							
Croton Manor Sanitarium	N&M	Indiv	94	61			207
Cuba 1 600—Allegany							
Cuba Memorial Hospital	Gen	NPAssn	28	25	8	251	1 301
Dannemora 4 [illegible]30—Clinton							
Clinton Prison General Hosp	Inst	State	173	131			691
Dannemora State Hospital	Ment	State	1,271	1 0[illegible]			117
Dansville 4,9[illegible]—Livingston							
Dansville Memorial Hosp	Gen	NPAssn	43	31	12	370	1 [illegible]24
Delhi 1 841—Delaware							
Delhi Hospital	Gen	NPAssn	16	8	6	126	472
Dobbs Ferry 5 883—Westchester							
Dobbs Ferry Hospital▲	Gen	NPAssn	46	30	10	149	1,065
Dunkirk 17 713—Chautauqua							
Brooks Memorial Hospital▲	Gen	NPAssn	116	90	24	646	3,364
Elizabethtown 640—Essex							
Community Hospital	Gen	NPAssn	14	8	5	125	367
Ellenville 4 000—Ulster							
Veterans Memorial Hospital	Gen	NPAssn	22	18	8	229	723
Elmhurst —Queens							
Horace Harding Hospital	Gen	Corp	152	119	44	1,535	6,883
Elmira 45 106—Chemung							
Arnot Ogden Memorial Hospital*▲○	Gen	NPAssn	197	177	4[illegible]	1 302	7,043
Chemung County Sanat	TB	County	41	35			35
St Joseph s Hospital*▲○	Gen	Church	255	190	38	948	6 735
Endicott 17 702—Broome							
Ideal Hospital*▲	Gen	City	96	61	30	704	3 167
Farmingdale 3 524—Nassau							
Nassau County Tuberculosis Hospital+▲	TB	County	357	280			216
Far Rockaway —Queens							
Hospital for Joint Diseases Country Branch	Unit of Hosp for Joint Diseases N Y C						
St Joseph Hospital+▲	Gen	Church	129	95	56	803	4,271
Fillmore 518—Allegany							
Fillmore Municipal Hospital	Gen	NPAssn	16	8	6	126	201
Flushing —Queens							
Flushing Hospital and Dispensary*+▲○	Gen	NPAssn	2[illegible]2	291	94	2 843	10 172
Parsons Hospital	Gen	Corp	60	55	20	680	3 037
Fort Totten —Queens							
Fort Totten Hospital and Dispensary	Gen	Army	36	9			339
Freeport 20 410—Nassau							
Freeport Hospital	Gen	Corp	39	20	20	560	1 965
Fulton 13 362—Oswego							
Albert Lindley Lee Memorial Hospital	Gen	City	63	34	17	615	1,[illegible]4
Gabriels 300—Franklin							
Sanatorium Gabriels▲	TB	Church	146	78			76
Geneva 15 555—Ontario							
Geneva General Hospital▲	Gen	NPAssn	102	73	25	619	3 06[illegible]
Glen Cove 12 415—Nassau							
North Country Community Hospital*▲	Gen	NPAssn	105	84	22	927	3 881
Glens Falls 18 8[illegible]—Warren							
Glens Falls Hospital*▲	Gen	NPAssn	151	1[illegible]8	50	1,566	7 161
Westmount Sanatorium	TB	County	46	38			37
Gloversville 23 329—Fulton							
Nathan Littauer Hospital▲○	Gen	NPAssn	133	101	30	947	4 133
Goshen 3 073—Orange							
Goshen Hospital	Gen	NPAssn	40	27	12	302	1 25[illegible]
Interpines Sanitarium	N&M	Indiv	60	32			65
Gouverneur 4 4[illegible]8—St Lawrence							
Edward John Noble Hosp ▲	Gen	NPAssn	34	23	12	441	9[illegible]4
Governors Island —New York							
Station Hospital▲	Gen	Army	850	146			3 [illegible]
Gowanda 3 156—Cattaraugus							
Tri-County Memorial Hosp	Gen	NPAssn	26	15	10	355	1 44[illegible]
Granville 3 173—Washington							
Emma Laing Stevens Hosp	Gen	NPAssn	23	10	11	1[illegible]0	414
Greenport 3,250—Suffolk							
Eastern Long Island Hosp	Gen	NPAssn	47	31	13	416	1 [illegible]
Harrison 8,500—Westchester							
St Vincent s Retreat	N&M	Church	200	1[illegible]7			1[illegible]7
Helmuth 100—Erie							
Gowanda State Homeopathic Hospital+▲○	Ment	State	3 150	3 000			823
Hempstead 20 856—Nassau							
Meadowbrook Hospital*+▲	Gen	County	250	234	24	671	[illegible]
Herkimer 9 617—Herkimer							
Herkimer Memorial Hospital	Gen	City	52	38	19	461	1 [illegible]
Holtsville 260—Suffolk							
Suffolk Sanatorium	TB	County	105	9[illegible]			101

Key to symbols and abbreviations is on page 38

NEW YORK—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Hornell, 15,649—Steuben							
Bethesda Hospital▲	Gen	NPAssn	50	32	12	292	1,480
St James Mercy Hospital▲○	Gen	Church	112	80	23	601	3,470
Hudson, 11,517—Columbia							
Columbia Memorial Hosp ▲	Gen	NPAssn	108	93	18	601	3,482
Huntington, 11,250—Suffolk							
Huntington Hospital▲	Gen	NPAssn	90	64	22	850	3,548
Ilion, 8,927—Herkimer							
Ilion Hospital	Gen	NPAssn	56	40	18	420	3,211
Irvington on Hudson, 3,272—Westchester							
Irvington House+	ChilCard	NPAssn	115	100			100
Ithaca, 19,730—Tompkins							
Cornell University Infirmary+▲	Inst	NPAssn	134	21			1,507
Hermann M Biggs Memorial Hospital+▲○	TB	State	250	197			296
Tompkins County Memorial Hospital▲	Gen	NPAssn	143	113	28	1,228	4,947
Jackson Heights, —Queens							
Physicians Hospital	Gen	Corp	127	120	44	1,866	6,071
Jamaica, —Queens							
Jamaica Hospital★+▲	Gen	NPAssn	185	148	44	1,696	6,274
Mary Immaculate Hosp ★+▲○	Gen	Church	273	290	60	2,129	8,889
Memorial Hospital	Gen	Indiv	75	40	9	951	3,057
Queens General Hospital★+▲○	Gen	City	705	793	52	2,013	14,593
Triboro Hospital+▲○	TB	City	625	613			552
Jamestown, 42,638—Chautauqua							
Jamestown General Hosp ▲	Gen	City	135	96	21	552	4,120
Woman's Christian Association Hospital▲○	Gen	NPAssn	132	110	34	1,267	6,215
Johnson City, 18,039—Broome							
Charles S Wilson Memorial Hospital★+▲○	Gen	NPAssn	360	286	40	1,500	9,309
Katonah, 1,800—Westchester							
Four Winds	N&M	Corp	37	25			38
Pinewood Sanitarium+	N&M	Part	63	56			216
Kew Gardens, —Queens							
Kew Gardens General Hosp	Gen	Corp	164	121	58	1,443	6,861
Kings Park, 2,500—Suffolk							
Kings Park State Hosp +▲○	Ment	State	6,347	7,501			2,784
Kingston, 28,589—Ulster							
Benedictine Hospital (Our Lady of Victory Sanitarium)▲○	Gen	Church	92	74	18	454	3,064
Kingston Hospital▲○	Gen	NPAssn	118	89	15	658	4,141
Ulster County Tuberculosis Hospital▲	TB	County	56	51			69
Lackawanna, 24,058—Erie							
Moses Taylor Hospital▲	Indus	NPAssn	28	7			235
Our Lady of Victory Hospital★▲○	Gen	Church	175	129	36	1,403	5,459
Lake Kushaqua, 200—Franklin							
Stony Wold in the Adirondacks▲	TB	NPAssn	141	111			97
Lake Placid, 3,136—Essex							
Lake Placid General Hosp	Gen	City	19	15	5	94	443
Liberty, 3,785—Sullivan							
Maimonides Hospital	Gen	NPAssn	37	27	6	243	1,026
Workmen's Circle Sanat	TB	NPAssn	75	40			70
Little Falls, 10,163—Herkimer							
Little Falls Hospital▲	Gen	NPAssn	82	51	19	540	2,568
Lockport, 24,379—Niagara							
Lockport City Hospital	Gen	City	142	101	30	990	5,016
Niagara Sanatorium+▲	TB	County	200	166			172
Long Beach, 9,036—Nassau							
Long Beach Memorial Hosp ▲	Gen	NPAssn	57	34	8	246	1,495
Long Island City, —Queens							
Astoria Sanatorium	Gen	Indiv	27	18	10	697	1,472
Boulevard Hospital	Gen	Corp	125	80	44	1,307	7,970
River Crest Sanitarium+	N&M	Corp	132	101			559
St John's Long Island City Hospital★+▲○	Gen	Church	230	183	39	1,064	6,246
Lowville, 3,578—Lewis							
Lewis County General Hosp	Gen	StateCo	46	28	18	365	1,784
Lyons, 3,803—Wayne							
Edward J Barber Hospital	Gen	Indiv	25	20	4	188	938
Lyons Hospital	Gen	Corp	21	15	6	150	663
Malone, 8,743—Franklin							
Alice Hyde Memorial Hosp ▲	Gen	NPAssn	83	58	15	544	2,703
Marcy, 800—Oneida							
Marcy State Hospital+▲	Ment	State	2,856	2,694			692
Margaretville, 812—Delaware							
Margaretville Hospital	Gen	NPAssn	52	34	6	186	1,071
Massena, 11,328—St Lawrence							
Massena Memorial Hospital	Gen	City	40	34	20	544	2,385
Medina, 5,871—Orleans							
Medina Memorial Hospital▲	Gen	NPAssn	36	27	10	352	1,170
Middle Grove, 100—Saratoga							
Saratoga County Tuberculosis Hospital▲	TB	County	60	51			34
Middletown, 21,908—Orange							
Elizabeth A Horton Memorial Hospital▲	Gen	NPAssn	114	82	14	451	3,170
Middletown Sanitarium and Hospital	Gen	Part	54	38	10	402	1,492
Middletown State Homeopathic Hospital+▲○	Ment	State	3,414	3,273			625
Mineola, 10,064—Nassau							
Nassau Hospital★+▲	Gen	NPAssn	227	181	50	1,613	8,509
Mineville, 600—Essex							
Mineville Hospital	Indus	NPAssn	18	13	1	2	303
Mitchel Field, —Nassau							
Station Hospital▲	Gen	USAF	150	84	12	378	2,073

NEW YORK—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Monticello, 3,737—Sullivan							
Hamilton Avenue Hospital	Gen	Indiv	25	20	5	175	827
Monticello Hospital	Gen	NPAssn	26	25	5	132	1,287
Montour Falls, 1,345—Schuyler							
Shepard Relief Hospital	Gen	NPAssn	35	24	9	255	1,095
Mount Kisco, 5,941—Westchester							
Northern Westchester Hosp ▲	Gen	NPAssn	137	90	20	650	3,924
Mount Morris, 3,530—Livingston							
Mount Morris Tuberculosis Hospital+▲○	TB	State	250	194			205
Mount Vernon, 67,362—Westchester							
Mount Vernon Hospital★+▲○	Gen	NPAssn	219	177	40	1,468	7,803
Newark, 9,646—Wayne							
Newark Hospital	Gen	Indiv	27	22	6	232	1,048
Newburgh, 31,883—Orange							
Estelle and Walter C Odell Memorial Sanatorium	TB	County	50	46			55
St Luke's Hospital★▲	Gen	NPAssn	186	133	32	987	6,002
New Rochelle, 58,408—Westchester							
New Rochelle Hospital★+▲○	Gen	NPAssn	310	222	60	1,370	9,213
New York City, 4,582,260—New York							
Babies Hospital+▲○	Unit of Presbyterian Hospital						
Beckman Downtown Hosp ▲	Gen	NPAssn	96	68			1,543
Bellevue Hospital★+▲○	Gen	City	3,049	2,851	83	2,706	52,325
Beth David Hospital★▲	Gen	NPAssn	167	122	30	938	4,542
Beth Israel Hospital★+▲○	Gen	NPAssn	326	264	80	2,672	9,208
Bronx Eye and Ear Infirmary+▲	ENT	NPAssn	54	28			3,859
Bronx Hospital★+▲	Gen	NPAssn	329	245	80	2,319	8,962
Bronx Maternity and Woman's Hospital	MatGyn	NPAssn	34	14	40	630	742
Charles B Towns Hospital	Drug	Corp	43	27			1,323
Columbus Hospital★▲	Gen	Church	260	152	40	525	5,554
Doctors Hospital+▲	Gen	NPAssn	272	216	70	1,900	7,087
Endaural Hospital	ENT	Indiv	33	20			537
Flower and Fifth Avenue Hospitals★+▲○	Gen	NPAssn	337	250	83	1,766	9,636
Fordham Hospital★+▲○	Gen	City	414	539	32	1,075	10,811
French Hospital★+▲	Gen	NPAssn	251	186	62	1,425	6,450
Goldwater Memorial Hospital★+▲	Chr	City	1,500	1,600			1,745
Gotham Hospital	Gen	Corp	101	68	24	979	3,570
Gouverneur Hospital★+▲	Gen	City	172	194			3,387
Harkness Pavilion	Unit of Presbyterian Hospital						
Harlem Eye and Ear Hospital+▲	ENT	NPAssn	38	11			2,435
Harlem Hospital★+▲○	Gen	City	846	900	138	4,133	21,801
Home and Hospital of the Daughters of Jacob	InstGen	NPAssn	557	236			129
Home for Aged and Infirm Hebrews▲	Inst	NPAssn	69	63			122
Hospital for Joint Diseases★+▲	GenOrth	NPAssn	362	311			5,828
Hospital for Special Surgery+▲	Orth	NPAssn	235	200			3,164
Hospital of the Rockefeller Institute for Medical Research▲	Gen	NPAssn	55	18			196
Jewish Memorial Hosp ★+▲	Gen	NPAssn	185	157	44	1,749	5,743
Knickerbocker Hospital★+▲	Gen	NPAssn	191	150		24	4,418
Lebanon Hospital★+▲	Gen	NPAssn	207	188	29	1,449	6,561
Leff Central Maternity Hosp	Mat	Indiv	39	29	39	1,287	1,414
Lenox Hill Hospital★+▲○	Gen	NPAssn	530	393	68	1,800	12,615
Le Roy Sanitarium	Gen	Corp	51	39	20	608	1,637
Lexington Hospital	Gen	Part	78	53	14	361	2,823
Lincoln Hospital★+▲○	Gen	City	391	435	66	2,392	12,143
Lutheran Hospital▲	Gen	NPAssn	120	70	30	646	2,838
Lying In Hospital+▲	Unit of New York Hospital						
Manhattan Eye, Ear and Throat Hospital+▲	ENT	NPAssn	210	128			11,584
Manhattan General Hosp ▲	Gen	Corp	380	270	40	1,727	7,740
Manhattan Maternity and Dispensary	Unit of New York Hospital						
Manhattan State Hosp +▲○	Ment	State	3,955	3,941			2,116
Medical Arts Center Hosp	Gen	Corp	141	68			2,820
Memorial Hospital+▲○	Cancer	NPAssn	208	231			6,744
Metropolitan Hospital★+▲○	Gen	City	1,060	1,131	40	1,840	13,158
Midtown Hospital▲	Gen	NPAssn	61	42			2,402
Misericordia Hospital★▲○	Gen	Church	181	130	55	1,495	5,312
Montefiore Hospital for Chronic Diseases★+▲	GenTb	NPAssn	594	542			4,367
Morrisania City Hosp ★+▲○	Gen	City	466	528	45	1,431	12,142
Mother Cabrini Memorial Hospital★+▲	Gen	Church	175	97	30	729	3,548
Mount Eden Hospital	Gen	Indiv	39	27	17	459	2,153
Mount Morris Park Hospital	Gen	NPAssn	55	40			1,003
Mount Sinai Hospital★+▲○	Gen	NPAssn	785	611			16,059
Neurological Institute+▲○	Unit of Presbyterian Hospital						
New York City Cancer Institute Hospital+▲	Cancer	City	210	214			825
New York City Hospital★+▲	Gen	City	823	740	44	1,191	12,947
New York Eye and Ear Infirmary+▲	ENT	NPAssn	109	105			5,998
New York Foundling Hosp +	Chil	Church	248	75	20		585
New York Hospital★+▲○	Gen	NPAssn	1,074	842	119	3,901	20,904
New York Infirmary★+▲	Gen	NPAssn	121	77	40	1,194	3,380
New York Nursery and Childs Hospital	Unit of New York Hospital						
New York Orthopaedic Dispensary and Hospital+▲	Unit of Presbyterian Hospital						

Key to symbols and abbreviations is on page 38

NEW YORK—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
New York Polyclinic Medical School and Hospital*+▲	Gen	NPAssn	374	281	37	1,427	9,509
New York Skin and Cancer Hospital	Unit of University Hospital						
New York State Psychiatric Institute+▲○	Ment	State	150	111			227
Park East Hospital	Gen	Corp	119	110	30	1 176	6,181
Parkway Hospital	Gen	NPAssn	71	33	10	313	1,936
Park West Hospital	Gen	Corp	85	55	12	806	3,931
Payne Whitney Psychiatric Clinic▲	Unit of New York Hospital						
Presbyterian Hospital*+▲○	Gen	NPAssn	1,424	1 157	144	3 607	31,206
Psychiatric Pavilion	Unit of Bellevue Hospital						
Reconstruction Hospital	Unit of University Hospital						
Riker s Island Hospital▲	Inst	City	260	144			2,245
Roosevelt Hospital*+▲○	Gen	NPAssn	410	321			8 748
St Ann s Maternity Hospital	Unit of New York Foundling Hospital						
St Barnabas Hospital for Chronic Diseases+▲	Chr	NPAssn	471	434			374
St Clare s Hospital*+▲	Gen	Church	440	299	65	1,457	10 138
St Elizabeth s Hospital▲	Gen	Church	175	133	33	1,023	6,548
St Francis Hospital*+▲	Gen	Church	350	255	45	1,973	7 342
St Joseph s Hospital for Chest Diseases+▲	TB	Church	300	292			405
St Luke s Hospital*+▲○	Gen	NPAssn	520	420			9,830
St Vincent s Hospital*+▲○	Gen	Church	440	404	70	1 745	11,523
Seton Hospital+▲	TB	City	430	454			477
Sloane Hosp for Women+▲○	Unit of Presbyterian Hospital						
Sydenham Hospital*+▲	Gen	City	205	151	42	1,237	5 074
Union Hospital	Gen	NPAssn	104	70	15	514	2 687
U S Marine Hospital+▲	Gen	USPHS	435	328			4,232
University Heights Sanitarium	Gen	Corp	67	45			2,500
University Hospital*+▲○	Gen	NPAssn	403	306			9 009
Veterans Admin Hospital+▲	Gen	Vet	1 627	1 498			10 508
Westchester Square Hosp	Gen	Corp	175	135	60	2,784	8,545
West Hill Sanitarium	N&M	Indiv	114	100			776
Willard Parker Hospital+▲○	IsoTb	City	433	307			4 927
Wm Booth Memorial Hosp ▲	Gen	Church	47	26	24	468	1,251
Woman s Hospital+▲	GynOb	NPAssn	220	146	100	2,753	5,816
Niagara Falls 78 029—Niagara							
Mount St Mary s Hosp *▲	Gen	Church	185	137	40	1 185	5 719
Niagara Falls Memorial Hospital▲	Gen	NPAssn	261	220	35	1 608	8 072
Northport 8 093—Suffolk							
Veterans Admin Hospital+▲	Ment	Vet	2 [illegible]02	2 559			621
North Tonawanda 20,254—Niagara							
De Graff Memorial Hosp	Gen	City	80	54	38	914	3 018
Norwich 8 049—Chenango							
Chenango Memorial Hospital	Gen	NPAssn	73	54	18	491	2,284
Nyack 5,206—Rockland							
Nyack Hospital▲	Gen	Corp	103	66	24	739	3 140
Ogdensburg 16,346—St Lawrence							
A Barton Hepburn Hosp ▲○	Gen	NPAssn	160	133	30	609	4,238
St Lawrence State Hosp ▲○	Ment	State	2,277	2,248			449
Olean 21 506—Cattaraugus							
Mountain Clinic Hospital	Gen	Part	33	10	5	146	887
Olean General Hospital▲	Gen	NPAssn	92	72	24	634	2,852
Rocky Crest Sanatorium▲	TB	County	45	41			85
St Francis Hospital▲	Gen	Church	100	75	24	574	2,955
Oneida 10 291—Madison							
Main Street Hospital	Gen	Indiv	16	No data supplied			
Oneida City Hospital▲	Gen	City	80	64	10	725	2 999
Oneonta 11 731—Otsego							
Aurelia Osborn Fox Memorial Hospital▲	Gen	NPAssn	87	75	18	555	2 802
Homer Folks Tuberculosis Hospital+▲○	TB	State	250	225			224
Orangeburg 750—Rockland							
Rockland State Hospital+▲○	Ment	State	7 873	6 503			1,502
Ossining 15 996—Westchester							
Ossining Hospital▲	Gen	NPAssn	65	57	12	369	2,479
Sing Sing Prison Hospital▲	Inst	State	84	44			955
Stony Lodge Sanitarium+	N&M	Indiv	32	24			100
Oswego 22,062—Oswego							
Oswego Hospital▲	Gen	NPAssn	76	56	13	786	2,025
Otisville 889—Orange							
Municipal Sanatorium+▲	TB	City	420	407			460
Peekskill 17,311—Westchester							
Peekskill Hospital▲	Gen	NPAssn	75	49	16	556	2 495
Penn Yan 5,308—Yates							
Soldiers and Sailors Memorial Hospital	Gen	NPAssn	50	30	10	306	1,340
Perrysburg 375—Cattaraugus							
J N Adam Memorial Hosp ▲	TB	State	442	384			253
Philmont 1 679—Columbia							
Columbia County Tuberculosis Sanatorium	TB	County	72	27			33
Plattsburg 16,351—Clinton							
Champlain Valley Hospital▲○	Gen	NPAssn	106	97	15	509	3 721
Physicians Hospital▲	Gen	NPAssn	140	105	26	608	4,938
Pomona 50—Rockland							
Summit Park Sanatorium▲	TB	County	86	82			71
Port Chester 23,073—Westchester							
Brooklea Farm	N&M	Indiv	18	18			21
Mary Harkness Convalescent Home	Unit of Presbyterian Hosp New York City						
St Luke s Convalescent Hospital	See Greenwich Conn						
United Hospital*+▲	Gen	NPAssn	182	142	32	1 215	6 136

NEW YORK—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Port Jefferson 3,500—Suffolk							
John T Mather Memorial Hospital▲	Gen	NPAssn	76	68	24	670	3 002
St Charles Hospital for Crippled Children+▲	Orth	Church	175	144			260
Wharton Memorial Institute	Unit of St Charles Hospital for Crippled Children						
Port Jervis 9 749—Orange							
St Francis Hospital▲	Gen	Church	50	40	12	311	2 000
Potsdam 4 821—St Lawrence							
Potsdam Hospital▲	Gen	NPAssn	75	65	25	705	3,226
Poughkeepsie, 40 478—Dutchess							
Hudson River State Hosp +▲○	Ment	State	4,817	4,738			903
St Francis Hospital*▲○	Gen	Church	107	78	25	548	3,511
Samuel and Nettie Bowne Hospital	TB	NPAssn	50	44			90
Samuel W Bowne Memorial Hospital▲	TB	City	131	100			63
Vassar Brothers Hosp *▲○	Gen	NPAssn	207	159	43	1,023	6,884
Queens Village —Queens							
Creedmoor State Hosp +▲○	Ment	State	5 102	5 109			955
Ray Brook 550—Essex							
Ray Brook State Tuberculosis Hospital+▲	TB	State	351	315			333
Rhinebeck 1 607—Dutchess							
Northern Dutchess Health Service Center▲	Gen	NPAssn	35	40	10	271	1 4[illegible]6
Richland 800—Oswego							
Oswego County Tuberculosis Hospital▲	TB	County	67	40			56
Rochester 324 975—Monroe							
Genesee Hospital*+▲○	Gen	NPAssn	226	194	36	1 319	7,877
Highland Hospital*+▲○	Gen	NPAssn	200	161	60	1 922	7 090
Iola Monroe County Tuberculosis Sanatorium+▲	TB	County	350	332			328
Monroe County Infirmary▲	Gen	County	525	506			2 320
Park Avenue Hospital▲	Gen	NPAssn	85	72	20	635	3 726
Rochester General Hosp *+▲○	Gen	NPAssn	324	379	63	2 540	12 442
Rochester Municipal Hosp *+▲	See Strong Memorial Rochester Municipal Hospitals						
Rochester State Hospital+▲○	Ment	State	3 415	3 300			849
St Mary s Hospital*+▲○	Gen	Church	325	292	65	2,085	13 083
Strong Memorial Rochester Municipal Hospitals*+▲○	Gen	NPAssnCy	747	492	84	1 818	16 010
Rockaway Beach —Queens							
Rockaway Beach Hospital▲	Gen	NPAssn	100	75	15	562	3 431
U S Marine Hospital	TB	USPHS	300	262			367
Rockville Centre 18 613—Nassau							
Mercy Hospital▲	Gen	Church	130	122	60	3 083	6 480
South Nassau Communities Hospital▲	Gen	NPAssn	130	99	40	1 802	5 428
Rome, 34,214—Oneida							
Oneida County Hospital	Gen	County	180	188	5	183	2 073
Rome Hospital and Murphy Memorial Hospital▲	Gen	City	122	63	28	1 084	3 405
Rome State School	MeDe	State	4 250	4,230	6	7	317
Roslyn 972—Nassau							
St Francis Sanatorium for Cardiac Children+	Card	Church	150	149			108
Roslyn Heights 3,500—Nassau							
Roslyn Park Hospital	Gen	Corp	48	23	10	426	1 702
St Albans 53 000—Queens							
U S Naval Hospital*+▲	Gen	Navy	1 510	971	25	847	8 928
Salamanca 9 011—Cattaraugus							
City Hospital	Gen	City	52	33	12	[illegible]	[illegible]
Salisbury Center 331—Herkimer							
Pine Crest Sanatorium▲	TB	County	65	54			46
Saranac Lake 7 138—Franklin							
General Hospital▲	Gen	NPAssn	50	29	10	224	[illegible]
Northwoods Sanatorium	TB	NPAssn	26	25			[illegible]
Variety Clubs-Will Rogers Hospital▲	TB	NPAssn	80	46			13
Saratoga Springs 13 705—Saratoga							
Saratoga Hospital▲	Gen	NPAssn	90	60	12	490	[illegible]
Veterans Admin Center	Gen	Vet	50	49			914
Schenectady 87,549—Schenectady							
Eastern New York Orthopedic Hosp School Sunny View	Orth	NPAssn	35	30			113
Ellis Hospital*+▲○	Gen	NPAssn	400	334	82	1 503	[illegible]
St Clare s Hospital	Gen	Church	179		35	Estab 1949	
Schenectady County Tuberculosis Hospital+▲	TB	County	131	122			123
Seneca Falls 6 452—Seneca							
Seneca Falls Hospital	Gen	City	31	21	12	251	784
Sidney 3 012—Delaware							
The Hospital	Gen	City	30	26	8	258	1,204
Sodus 1,513—Wayne							
J F Myers Hospital	Gen	Indiv	27	17	10	221	[illegible]
Sonyea 500—Livingston							
Craig Colony○	Epil	State	[illegible]	2 241	3	11	200
Southampton 3,818—Suffolk							
Southampton Hospital▲○	Gen	NPAssn	124	67	23	548	2 423
Stamford 1 08[illegible]—Delaware							
Bathgate Hospital	Gen	Corp	18	8	6	117	[illegible]
Stapleton (Staten Island P O) —Richmond							
U S Marine Hospital*+▲	Gen	USPHS	[illegible]	[illegible]	21	[illegible]	[illegible]
Staten Island 174 441—Richmond							
Richmond Borough Hospital	Iso	City	49	11			[illegible]
Richmond Memorial Hosp ▲	Gen	NPAssn	100	61	15	[illegible]	[illegible]
St Vincent s Hospital*+▲	Gen	Church	211	[illegible]	[illegible]	[illegible]	[illegible]
Sea View Hospital+▲○	TB	City	1 394	[illegible]			[illegible]
Staten Island Hospital▲	Gen	NPAssn	171	[illegible]	[illegible]	[illegible]	[illegible]
Veterans Admin Hospital+▲	Gen	Vet	[illegible]	[illegible]			[illegible]

Key to symbols and abbreviations is on page 38

NEW YORK—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Suffern, 3,765—Rockland							
Good Samaritan Hospital▲	Gen	Church	92	75	20	837	3,890
Sunmount, 50—Franklin							
Veterans Admin Hospital+▲	TB	Vet	559	425			488
Syracuse, 205,967—*Onondaga*							
City Hospital▲○	Iso	City	73	26		–	944
Crouse-Irving Hospital★+▲○	Gen	NPAssn	215	163	40	1,816	7,554
General Hospital★+▲○	Gen	NPAssn	120	111	31	1,497	4,981
Hospital of the Good Shepherd★+▲○	Gen	NPAssn	109	156			4,586
Onondaga General Hospital	Gen	NPAssn	72	47	10	40	1,283
Onondaga Sanatorium▲	TB	State	227	213			315
Peoples Hospital	Gen	NPAssn	28	13	4	24	494
St Joseph's Hospital★+▲○	Gen	Church	202	181	45	1,555	7,145
St Mary's Maternity Hospital and Children's Home	Mat	Church	27	17	20	603	703
Syracuse Memorial Hosp ★+▲○	Gen	NPAssn	283	222	58	2,067	9,195
Syracuse Psychopathic Hospital+▲	Ment	State	60	56			577
Twin Elms	N&M	Part	18	19	-		170
Wieting Johnson Memorial *Hospital*	CardChil	NPAssn	40	22			40
Tarrytown, 6,874—Westchester							
Tarrytown Hospital▲	Gen	NPAssn	57	35	13	361	1,677
Thiells, 700—Rockland							
Letchworth Village+	MeDe	State	3,781	4,055	6	7	470
Ticonderoga, 3,402—Essex							
Moses Ludington *Hospital*▲	Gen	NPAssn	85	39	12	330	1,396
Troy, 70,304—Rensselaer							
Leonard Hospital▲	Gen	NPAssn	132	103	35	706	4,013
Marshall Sanitarium	N&M	NPAssn	66	53			240
Price Memorial *Hospital*	Unit of Samaritan *Hospital*						
St Joseph's Maternity Hosp	Mat	Church	32	14	21	504	665
St Mary's Hospital★▲	Gen	Church	244	182	28	634	6,039
amaritan Hospital★+▲○	Gen	NPAssn	167	127	31	1,161	5,306
udeau, 600—Essex							
Trudeau Sanatorium+▲○	*TB*	NPAssn	*200*	*175*			251
Tupper Lake, 5,451—Franklin							
Mercy General Hospital	Gen	Church	35	18	10	204	839
Tuxedo Park, 2,500—Orange							
Tuxedo Memorial Hospital▲	Gen	NPAssn	33	17	7	122	711
Upton,—*Suffolk*							
Brookhaven National Laboratory Hospital▲	Gen	NPAssn	42	8	.		43
Utica, 100,518—Oneida							
Broadacres Sanatorium▲	TB	State	182	112			141
Children's *Hospital Home*▲	Orth	NPAssn	40	25			161
Faxton Hospital▲○	Gen	NPAssn	125	96	27	894	4,010
Masonic Soldiers' and Sailors Memorial Hospital	Gen	NPAssn	170	156			544
Oneida County Hospital	Gen	County	125	57	10	172	3,155
St *Elizabeth Hospital*▲○	Gen	Church	170	162	23	1,002	7,645
St Luke's Home and Hosp ▲	Gen	Church	108	82	27	827	3,873
Utica Memorial Hospital▲○	Gen	NPAssn	*86*	*66*	*16*	529	3,306
Utica State Hospital+▲○	Ment	State	1,950	1,915			610
Valhalla, 2,200—Westchester							
Grasslands *Hospital*★+▲○	Gen	County	*800*	543	15	190	4,459
Warsaw, [illegible]551—Wyoming							
Wyoming County Community Hospital▲	Gen	StateCo	115	76	15	615	3,037
Warwick, 2,531—Orange							
St Anthony's Hospital▲	Gen	Church	50	28	12	152	1,020
Waterloo, 4,010—Seneca							
Waterloo Memorial Hospital	Gen	NPAssn	*26*	25	8	215	882
Watertown, 33,385—Jefferson							
House of the Good Samaritan▲○	Gen	NPAssn	150	131	31	877	5,000
Jefferson County Sanat +▲	TbChr	County	86	76			419
Mercy Hospital▲○	Gen	Church	139	112	29	702	4,437
Waverly, 5,450—Tioga							
Tioga County General Hospital▲	*Gen*	*NPAssn*	*66*	49	15	410	1,088
Wayland, 1,705—Steuben							
Wayland Hospital	Gen	NPAssn	18	*10*	4	77	424
Wellsville, 5,912—Allegany							
Memorial Hospital of Wm F and Gertrude F Jones	*Gen*	*City*	*55*	27	10	494	1,797
West Brentwood,—Suffolk							
Pilgrim State Hospital+▲○	Ment	State	10,211	9,765			2,660
Westfield, 3,434—Chautauqua							
Westfield Memorial Hospital	Gen	NPAssn	40	17	12	303	812
West Haverstraw, 2,533—Rockland							
Rehabilitation Hospital+▲	Orth	State	283	193			322
West Point, 1,500—Orange							
Station Hospital▲	Gen	Army	252	*110*	*15*	331	3,618
White Plains, 40,327—Westchester							
Burke Convalescent Home	Conv	NPAssn	185	98			1,046
New York Hospital Westchester Division+▲○	N&M	NPAssn	301	270			377
St Agnes Hospital★▲	Gen	Church	138	92	30	565	3,702
White Plains Hospital★+▲○	Gen	NPAssn	188	145	30	813	6,910
Willard, 900—Seneca							
Willard State *Hospital*+▲○	Ment	State	3,584	3,150			977
Wingdale, 500—Dutchess							
Harlem Valley State Hospital+▲○	Ment	State	4,690	4,595			819
Woodhaven, 44,000—Queens							
St Anthony's Hospital▲	TB	Church	375	346			458
Wynantskill, 200—Rensselaer							
Pawling Sanatorium	TB	County	118	80			89
Yaphank, 250—Suffolk							
Suffolk Home and Infirmary	Chr	County	263	200			103

NEW YORK—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	*Admissions* †
Yonkers, 142,559—Westchester							
Gray Oaks Hospital	TB	City	45	35			52
House of Rest at Sprain Ridge	TB	NPAssn	76	62			90
St John's Riverside Hospital★▲○	Gen	NPAssn	188	135	32	1,018	5,869
St Joseph's Hospital★▲	Gen	Church	183	141	24	486	8,499
Yonkers General *Hospital*★▲	Gen	NPAssn	143	136	36	978	6,112
Yonkers Professional Hosp	Gen	Corp	159	102	30	621	4,355

Related Institutions

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Albany, 130,577—Albany							
Albany's Hospital for Incurables	*Incur*	*NPAssn*	*100*	*90*		.	49
St Margaret's House and Hospital for *Babies*	Inst	Church	40	45	15	,	80
Albion, 4,660—Orleans							
Albion State Training School	MeDe	State	460	232	3	12	48
Alden, 954—Erie							
Erie County Penitentiary Hospital	*Inst*	County	37	11			159
Alexandria Bay, 1,745—Jefferson							
Noble Foundation Hospital	Gen	City	14	9	4	108	506
Bainbridge, 1,450—Chenango							
Bainbridge Hospital	Gen	Indiv	14	No data supplied			
Bedford Hills, 2,000—Westchester							
Westfield State *Farm*	*Inst*	*State*	*48*	*46*	*40*		1,208
Binghamton, 78,309—Broome							
Binghamton Training School	MeDe	Indiv	55	48			7
Brooklyn, 2,698,285—Kings							
Bensonhurst Nursing Home	Conv	Part	*36*	*27*			*172*
Esplanade Nursing Home	ConvChr	Part	46	42			100
Menorah Home and Hospital *for Aged and Infirm*	Chr	NPAssn	50	50			43
Buffalo, 575,901—Erie							
Booth Memorial Hospital	*Mat*	Church	12	3	14	61	123
Crippled Children's Guild Hospital	Orth	NPAssn	65	40			68
Ingleside Home and Hosp	Mat	NPAssn	52	37	20	150	187
Corinth, 3,054—Saratoga							
Corinth Hospital	*Gen*	*NPAssn*	*26*	*16*	*6*	148	659
Eastview, 1,000—Westchester							
Solomon and Betty Loeb Memorial Home for Convalescents	Conv	NPAssn	110	77			1,369
Elmira, 45,106—Chemung							
Elmira Reformatory Hosp	Inst	State	97	20			1,085
Haverstraw, 5,909—Rockland							
Wee Haven	*MeDe*	Indiv	40			Estab	1949
Hawthorne, 2,000—Westchester							
Rosary Hill Home	*Cancer*	*Church*	100	81			282
Industry, 350—Monroe							
Hospital of State Agriculture *and Industrial School*	Inst	State	50	21			945
Iroquois, 40—Erie							
Thomas *Indian School Hosp*	*Inst*	*State*	31	12			461
Ithaca, 19,730—Tompkins							
Conklin Sanitarium	Gen	Indiv	15	11			676
Reconstruction Home	*Orth*	NPAssn	84	62			80
Johnson City, 18,039—Broome							
Springer Private Hospital	*Mat*	Indiv	25	21	4	67	106
Keene Valley, 511—Essex							
Keene Valley Neighborhood House and Hospital	Gen	NPAssn	11	5	5	62	105
Lake Ronkonkoma, 1,000—Suffolk							
Gary de Vabre Academy	*MeDe*	*Indiv*	18	15			16
Millbrook, 1,340—Dutchess							
Cardinal Hayes Memorial Convalescent Home for Children	Conv	Church	70	65			393
Mount McGregor, 300—*Saratoga*							
New York State Veterans' Camp	Conv	State	610	362			2,938
Napanoch, 750—Ulster							
Institution for Male Defective Delinquents	MeDe	State	28	12			854
Newark, 9,646—Wayne							
Newark State School	MeDe	State	2,768	2,622	*9*	*6*	240
New York *City*, 4,582,259—*New* York							
Beth Abraham Home for Incurables	Incur	NPAssn	316	318			71
Hebrew Convalescent Home	Conv	NPAssn	81	64			559
Home and Hospital of the Daughters *of* Israel	Inst	NPAssn	130	120			410
Home for Dependents	Inst	City	1,730	1,757			838
House of *Calvary*	Cancer	Church	146	108			351
House of the Holy Comforter	Chr	Church	91	72			18
National Hospital for Speech Disorders	Speech	NPAssn		229			4,093
St Rose's *Free Home for Incurable Cancer*	Cancer	Church	91	78			351
Niagara Falls, 78,029—Niagara							
Niagara Falls Municipal Hospital	IsoChr	City	36	7			100
Oceanside (Rockville Centre, P O)—500, Nassau							
Oceanside Gardens Sanitarium	N&M	Corp	19	19			79
Ogdensburg, 16,346—St Lawrence							
St John's Hospital	Conv	Church	35	26			42

Key to symbols and abbreviations is on page 38

NEW YORK—Continued

Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Onondaga 325—Onondaga							
Onondaga County Hospital	Inst	County	236	228			461
Oxford 1 713—Chenango							
New York State Woman s Relief Corps Home	Inst	State	71	74			167
Pelham 1,918—Westchester							
Pelham Home for Children	Card	NPAssn	20	16			31
Pleasantville 4 454—Westchester							
Pleasantville Cottage School	Inst	NPAssn	24	8			323
Poughkeepsie 40 478—Dutchess							
Baldwin House (Vassar College Infirmary)	Inst	NPAssn	35	9			705
Poughkeepsie City Home Infirmary	Inst	City	47	40			67
Queens Village 46 000—Queens							
Queens Village Sanatorium	Gen	Indiv	12	6			88
Rochester 324 975—Monroe							
Convalescent Hospital for Children	Conv	NPAssn	52	26			65
Field Sanitarium	Conv	Indiv	41	27			31
Knorr Sanitarium	Conv	Indiv	35	33			125
Rye 9 865—Westchester							
Halcyon Rest Sanitarium	N&M	Indiv	52	45			268
Saranac Lake 7,138—Franklin							
Franklin Manor	*TB*	*Indiv*	*15*	*10*			*20*
Owens Private Sanatorium	TB	Indiv	18	No data supplied			
Schenectady 87 549—Schenectady							
Bellevue Maternity Home	Mat	Indiv	50	37	54	1 428	1 467
Schenectady City Hospital○	Iso	City	85	15			648
Schenectady County Home and Hospital	Inst	County	73	67			192
Springville 2,849—Erie							
Bertrand Chaffee Hospital	Gen	NPAssn	30	12	12	338	801
Staten Island 174 441—Richmond							
New York City Farm Colony	Inst	City	1,173	1 167			482
Sailors Snug Harbor Hosp	Gen	NPAssn	165	92			801
State School—Orange							
Hospital of New York State Training School for Boys	Inst	State	25	4			528
Syracuse 205 967—Onondaga							
Syracuse State School	MeDe	State	1 163	976			158
Tupper Lake 5 451—Franklin							
American Legion Mountain Camp	Conv	NPAssn	75	50			156
Valhalla 2 200—Westchester							
Blythedale Convalescent Home	Orth	NPAssn	70	51			81
Wallkill 800—Ulster							
Wallkill State Prison Hosp	Inst	State	19	5			340
Wassaic 350—Dutchess							
Wassaic State School▲	MeDe	State	4,449	4 648	6	14	370
Williamsville 3 614—Erie							
Josephine Goodyear Convalescent Home	Chil	NPAssn	60	46			184
Woodbourne 500—Sullivan							
Woodbourne Institution for Defective Delinquents	Inst	State	64	50			600

NORTH CAROLINA

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Ahoskie 2 313—Hertford							
Roanoke Chowan Hospital	Gen	NPAssn	50	29	12	250	1,558
Albemarle 4 060—Stanly							
Stanly General Hospital	Gen	NPAssn	45	25	10	173	1 893
Yadkin Hospital	Gen	NPAssn	49	33	13	729	2,515
Asheboro 6 981—Randolph							
Barnes Griffin Clinic Hospital	Gen	Indiv	26	17	12	227	1,201
Randolph Hospital▲	Gen	NPAssn	92	69	25	732	3 693
Asheville 51 310—Buncombe							
Appalachian Hall	N&M	Corp	175	94			1,058
Asheville Colored Hospital	Gen	NPAssn	36	20	8	208	846
Ashton Park Hospital▲	Gen	NPAssn	45	34			1,628
Highland Hospital▲	N&M	NPAssn	85	63			233
Memorial Mission Hospital▲○	Gen	NPAssn	184	125	35	1 094	5 758
Norburn Hospital and Clinic	Gen	NPAssn	101	56	10	319	3,587
St Joseph s Hospital▲	Gen	Church	127	84	38	1,159	4 731
Zephyr Hill Sanatorium	TB	Indiv	22	20			19
Banner Elk 844—Avery							
Grace Hospital▲○	Gen	Church	70	45	15	327	2,361
Black Mountain 1 042—Buncombe							
Fellowship Sanatorium of the Royal League	TB	NPAssn	18	7			14
Western North Carolina Sanatorium▲	TB	State	300	283			290
Boone 1 788—Watauga							
Watauga Hospital	Gen	NPAssn	45		12	Reorganized	
Brevard 3 061—Transylvania							
Transylvania Community Hospital	Gen	NPAssn	25	25	6	272	1 057
Burlington 21 830—Alamance							
Alamance County Sanatorium	TB	County	25	23			20
Alamance General Hospital	Gen	NPAssn	46	36	6	18	2 050
Butner —Granville							
State Hospital	Ment	State	1 476	1,162			370

NORTH CAROLINA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Camp Lejeune —Craven							
U S Naval Hospital▲	Gen	Navy	350	185	18	496	3 649
Charlotte 100,899—Mecklenburg							
Charlotte Eye Ear and Throat Hospital▲	ENT	Part	34	25			2 841
Charlotte Memorial Hospital*+▲○	Gen	NPAssn	350	295	32	951	11 000
Good Samaritan Hospital▲○	Gen	Church	90	96	20	1,255	5,352
Mercy Hospital▲○	Gen	Church	240	207	115	1,904	7 643
Presbyterian Hospital+▲○	Gen	Church	248	230	39	1 455	7,574
Western Medical Center	Ven	State	200	100			2 663
Cherokee 500—Swain							
Eastern Cherokee Indian Hospital	Gen	IA	26	17	7	111	705
Cherry Point —Craven							
U S Marine Corps Air Station Dispensary	Gen	Navy	167	27	18	380	2,233
Columbia, 1 000—Tyrrell							
Columbia Hospital	Gen	Indiv	22	6	7	190	655
Concord, 15,572—Cabarrus							
Cabarrus County Hospital▲○	Gen	County	175	143	40	1 674	7,953
Crossnore 266—Avery							
Garrett Memorial Hospital	Gen	NPAssn	19	10	6	100	502
Durham 60 195—Durham							
Duke Hospital+▲○*	*Gen*	*NPAssn*	*549*	*422*	*55*	*1 290*	*13 952*
Durham County Tuberculosis Sanatorium	TB	County	57	50			49
Eastern Medical Center	Ven	State	204	136	3	4	3 791
Lincoln Hospital*+▲○	Gen	NPAssn	99	73	23	460	2,596
McPherson Hospital+▲	ENT	Indiv	45	20			1,907
Watts Hospital*+▲○	Gen	NPAssn	200	211	25	1,393	10 225
Elizabeth City 11 564—Pasquotank							
Albemarle Hospital	Gen	CyCo	87	59	16	261	2 128
Elkin 2,734—Surry							
Hugh Chatham Memorial Hospital▲	Gen	Church	74	41	24	745	2,804
Fayetteville, 17 428—Cumberland							
Cumberland County Tuberculosis Sanatorium	TB	County	32	30			58
Highsmith Hospital▲○	Gen	NPAssn	120	109	24	584	5 103
R L Pittman Hospital	Gen	NPAssn	75	72	30	455	3 477
Veterans Admin Hospital	Gen	Vet	938	290			5 002
Fletcher 500—Henderson							
Mountain Sanitarium and Hospital○	Gen	NPAssn	70	48	10	146	1 353
Fort Bragg —Cumberland							
Station Hospital▲	Gen	Army	600	376	27	1,267	11 519
Franklin 1,249—Macon							
Angel Clinic-Hospital	Gen	Indiv	30	20	3	84	962
Angel Hospital	Gen	NPAssn	56	22	8	125	1 029
Gastonia 21,318—Gaston							
Garrison General Hospital	Gen	NPAssn	50	43	18	804	3 475
Gaston County Negro Hosp	Gen	County	24	12	6	241	813
Gaston Memorial Hospital○	Gen	NPAssn	65	50	15	688	3 499
North Carolina Orthopedic Hospital▲○	Orth	State	160	135			436
Goldsboro 17,274—Wayne							
State Hospital	Ment	State	2 770	2,753			502
Wayne County Memorial Hospital▲	Gen	County	130	75	25	706	4,209
Greensboro 59 319—Guilford							
Piedmont Memorial Hosp ▲	Gen	NPAssn	61	39	17	347	2,412
L Richardson Memorial Hospital▲	Gen	NPAssn	84	54	18	620	2,831
St Leo s Hospital▲○	Gen	Church	93	70	20	1 005	4 891
Sternberger Hospital for Women and Children+▲○	Gen	NPAssn	49	34	13	354	1 533
Wesley Long Hospital▲	Gen	NPAssn	100	67	20	629	4,548
Greenville 12 674—Pitt							
Pitt General Hospital	Gen	NPAssn	63	46	11	395	3 433
Hamlet 5 111—Richmond							
Hamlet Hospital○	Gen	NPAssn	100	60	15	579	3 009
Henderson 7 647—Vance							
Jubilee Hospital	Gen	Church	37	25	5	174	1 700
Maria Parham Hospital▲	Gen	NPAssn	54	39	17	505	2,500
Hendersonville 5 381—Henderson							
Patton Memorial Hospital▲	Gen	NPAssn	47	32	15	480	1 918
Hickory 13 487—Catawba							
Hickory Memorial Hospital	Gen	NPAssn	53	35	18	540	2,703
Richard Baker Hospital	Gen	Indiv	80	40	24	624	2 710
High Point 38 495—Guilford							
High Point Memorial Hospital▲○	Gen	NPAssn	131	90	37	1 414	5 773
Huntersville 763—Mecklenburg							
Mecklenburg Sanatorium▲	TB	County	160	109			162
Jacksonville 873—Onslow							
Onslow County Hospital	Gen	County	60	2	17	483	1 [illegible] 4
Jamestown 900—Guilford							
Guilford County Sanatorium▲	TB	County	118	106			226
Jefferson 804—Ashe							
Ashe County Memorial Hospital	Gen	NPAssn	30	[illegible]	12	502	1,5[illegible]
Kinston 15 38[illegible]—Lenoir							
Memorial General Hospital▲○	Gen	NPAssn	[illegible]3	60	12	6[illegible]2	4 [illegible]
Parrott Memorial Hospital	Gen	NPAssn	50	35	15	621	2,6[illegible]
Laurinburg 5 685—Scotland							
Scotland County Memorial Hospital	Gen	NPAssn	75	[illegible]	1[illegible]	4[illegible]	[illegible]
Leaksville 1,8[illegible]6—Rockingham							
Leaksville General Hospital▲	Gen	NPAssn	45	2[illegible]	[illegible]	[illegible]	1 [illegible]

Key to symbols and abbreviations is on page 38

NORTH CAROLINA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Lenoir, 7,598—Caldwell							
Blackwelder Hospital	Gen	NPAssn	32	28	10	570	2,161
Dula Hospital	Gen	Indiv	30	26	6	174	1,311
Lenoir Hospital	Gen	Corp	30	19	8	70	666
West Harper Clinic Hosp	Gen	Indiv	12		4	Estab	1949
Lexington, 10,550—Davidson							
Lexington Memorial Hosp	Gen	NPAssn	80	46	30	745	3,454
Lincolnton, 4,525—Lincoln							
Gordon Crowell Memorial Hospital	Gen	Corp	68	29	14	358	2,249
Reeves Gamble Hospital	Gen	NPAssn	35	19	10	208	1,789
Lumberton, 5,803—Robeson							
Robeson County Memorial Hospital○	Gen	NPAssn	100	93	30	1,044	6,287
Marion, 2,889—McDowell							
Marion General Hospital	Gen	NPAssn	42	32	18	756	2,787
McCain,—Hoke							
North Carolina Sanatorium for the Treatment of Tuberculosis+▲○	TB	State	600	531			602
Monroe 6 475—Union							
Ellen Fitzgerald Hospital▲	Gen	NPAssn	60	62	14	860	4,059
Mooresville, 6,682—Iredell							
Lowrance Hospital▲○	Gen	NPAssn	78	55	15	626	4,713
Morehead City 3,695—Carteret							
Morehead City Hospital	Gen	City	51	26	16	479	1,909
Morganton 7,670—Burke							
Broadoaks Sanatorium	N&M	Part	75	44			68
Grace Hospital▲○	Gen	NPAssn	104	60	20	628	3,548
State Hospital	Ment	State	2,741	2,530			605
Mount Airy 6 286—Surry							
Martin Memorial Hospital▲○	Gen	NPAssn	75	71	15	557	3 134
Murphy, 1 873—Cherokee							
Petrie Hospital	Gen	NPAssn	25	14	12	225	715
Nashville, 1,171—Nash							
Nash County Tuberculosis Sanatorium	TB	County	33	23			46
New Bern, 11,815—Craven							
Good Shepherd Hospital	Gen	Church	58	16	8	124	708
Kafer Memorial Hospital	Gen	NPAssn	30		6	Estab	1949
St Luke's Hospital	Gen	Church	65	28	20	418	1,916
Newton, 5,407—Catawba							
Catawba Hospital	Gen	NPAssn	100	54	12	668	2,015
North Wilkesboro 4 478—Wilkes							
Wilkes County Tuberculosis Hospital	TB	County	32	19			41
Wilkes Hospital▲	Gen	NPAssn	60	35	15	571	3,029
Oteen 1,200—Buncombe							
Veterans Admin Hospital+▲	TB	Vet	1,996	1,343			4,374
Oxford, 8 991—Granville							
Granville Hospital	Gen	NPAssn	37	26	14	246	1 367
Susie Clayton Cheatham Memorial Hospital	Gen	NPAssn	19	12	1	167	763
Pinebluff 330—Moore							
Pinebluff Sanitarium	N&M	Corp	50	35			207
Pinehurst 1,600—Moore							
Moore County Hospital▲	Gen	NPAssn	80	69	20	517	3,306
Raleigh 46 897—Wake							
Central Prison Hospital	Inst	State	134	63			1,151
Mary Elizabeth Hospital○	Gen	Corp	60	45	10	375	2,047
Rex Hospital*+▲○	Gen	NPAssn	306	263	44	1,647	11,122
Royster Medical Center	Unit of State Hospital						
St Agnes Hospital*▲○	Gen	Church	114	85	20	535	3,061
State Hospital▲○	Ment	State	2,445	2,246			1,053
Wake County Tuberculosis Sanatorium	TB	CyCo	58	60			51
Reidsville 10 387—Rockingham							
Annie Penn Memorial Hosp	Gen	NPAssn	70	40	18	771	3 087
Roanoke Rapids, 8,545—Halifax							
Roanoke Rapids Hospital○	Gen	NPAssn	110	77	30	833	4,955
Rocky Mount, 25 568—Nash							
Atlantic Coast Line Hosp ▲	Indus	NPAssn	50	24			762
Park View Hospital▲○	Gen	NPAssn	110	70	20	683	3,650
Rocky Mount Sanitarium▲○	Gen	NPAssn	76	53	12	403	2,755
Speight Stone Bell Clinic Hospital	Gen	Part	22	14	7	266	1,166
Roseboro 939—Sampson							
Brewer Starling Clinic Hosp	Gen	Part	9	3	5	258	342
Roxboro, 4,599—Person							
Community Hospital	Gen	NPAssn	26	11	6	324	1,306
Rutherfordton, 2,326—Rutherford							
Rutherford Hospital▲○	Gen	NPAssn	64	47	11	497	3,379
Salisbury 19,037—Rowan							
Rowan Memorial Hospital▲○	Gen	NPAssn	150	119	36	1,281	6,341
Sanford, 4,960—Lee							
Lee County Hospital▲	Gen	County	54	51	26	852	3,447
Shelby, 14,037—Cleveland							
Shelby Hospital○	Gen	County	102	47	26	901	3,730
Siler City, 2,197—Chatham							
Chatham Hospital	Gen	NPAssn	18	10	6	216	820
Smithfield, 3 678—Johnston							
Johnston County Hospital	Gen	NPAssn	35	23	12	423	1,263
Southport, 1,760—Brunswick							
J Arthur Dosher Memorial Hospital	Gen	CyCo	50	29	7	164	986
Spruce Pine, 1,968—Mitchell							
Williams Clinic Hospital	Gen	Indiv	22	16	9	323	1,106
Statesville, 11,440—Iredell							
Davis Hospital▲○	Gen	NPAssn	130	104	22	725	4,478
H F Long Hospital▲○	Gen	NPAssn	70	52	14	489	3,191
Swannanoa, 2,500—Buncombe							
Veterans Admin Hospital▲	Unit of Veterans Admin Hosp , Oteen, N C						

NORTH CAROLINA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Sylva, 1,409—Jackson							
C J Harris Community Hospital	Gen	NPAssn	40	16	10	258	1 185
Tarboro, 7,148—Edgecombe							
Bass Memorial Hospital	Gen	Indiv	8	4	5	27	119
Edgecombe General Hospital▲	Gen	NPAssn	68	39	14	287	1,599
Thomasville, 11,041—Davidson							
City Memorial Hospital	Gen	NPAssn	47	31	12	457	2,188
Tryon, 2,013—Polk							
St Luke's Hospital▲	Gen	NPAssn	29	14	8	160	917
Valdese, 2,615—Burke							
Valdese General Hospital	Gen	NPAssn	49	35	12	279	2,729
Wadesboro, 3,587—Anson							
Anson Sanatorium	Gen	NPAssn	40	30	10	334	1,586
Walnut Cove, 1,084—Stokes							
Stokes Clinic Hospital	Gen	Indiv	20	8	6	118	279
Washington, 8,569—Beaufort							
Fowle Memorial Hospital	Gen	Indiv	16	12	6	130	503
Tayloe Hospital▲	Gen	NPAssn	78	60	16	769	3,335
Waynesville, 2,940—Haywood							
Haywood County Hospital	Gen	County	72	89	15	965	2,556
Whiteville, 3,011—Columbus							
Columbus County Hospital	Gen	NPAssn	62	50	17	655	3,002
Williamston, 3,966—Martin							
Brown Community Hospital	Gen	Indiv	35	16	7	95	794
Wilmington, 33 407—New Hanover							
Babies Hospital+○	Chil	NPAssn	50	24	10		1,438
Bulluck Hospital Clinic	Gen	NPAssn	25	18		1	905
Community Hospital○	Gen	CyCo	105	61	30	462	1,973
James Walker Memorial Hospital*+▲○	Gen	NPAssn	300	227	50	1,610	9,030
Wilson, 19,234—Wilson							
Carolina General Hospital▲○	Gen	NPAssn	54	38	15	614	2 276
Eastern North Carolina Sanatorium	TB	State	195	189			186
Mercy Hospital	Gen	NPAssn	38	19	8	179	830
Wilson County Tuberculosis Sanatorium	TB	County	40	32			40
Woodard Herring Hospital▲○	Gen	NPAssn	50	49	10	885	2,401
Winston Salem 79,815—Forsyth							
City Memorial Hospital+▲○	Gen	City	186	154	35	1,537	8,994
Forsyth County Hospital	Gen	County	36	12	6	55	428
Forsyth County Sanatorium▲	TB	County	132	105			92
Graylyn, Bowman Gray School of Medicine	N&M	NPAssn	37	17			338
Kate Bitting Reynolds Memorial Hospital*+▲○	Gen	City	205	168	28	991	6,393
North Carolina Baptist Hospital*+▲○	Gen	Church	250	223	50	1,176	8,370

Related Institutions

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Asheville, 51,310—Buncombe							
Asheville Orthopedic Hosp	Orth	NPAssn	60	54			810
Violet Hill Sanatorium	TB	Indiv	37	37			23
Bakersville, 437—Mitchell							
Dorothy Carolyn Hospital	Mat	Indiv	6		4	Estab	1949
Candler 60—Buncombe							
Pisgah Sanitarium and Hosp	Gen	Church	30	16	8	2	173
Davidson, 1,550—Mecklenburg							
Davidson College Infirmary	Inst	NPAssn	25	1			160
Edenton, 3,835—Chowan							
Chowan Hospital	Gen	CyCo	48	16	6	151	939
Greensboro, 59,319—Guilford							
Central Carolina Convalescent Hospital	Orth	NPAssn	120	98			203
Henderson, 7,647—Vance							
Scott Parker Sanatorium	TB	County	16				
Hope Mills 900—Cumberland							
Reeves Clinic Hospital	Gen	Indiv	18	7	9	240	677
Kinston, 15,388—Lenoir							
Caswell Training School	MeDe	State	896	751			201
Raleigh, 46,897—Wake							
Clark Hall Hospital	Inst	State	90	6			347
McCauley Private Hospital	Gen	Indiv	10	3	4	87	147
Tarboro, 7,148—Edgecombe							
Edgecombe County Tuberculosis Sanatorium	TB	County	27	23			30
Winston Salem 79 815—Forsyth							
Casstevens Clinic Hospital	Gen	Indiv	20	7	5	145	900

NORTH DAKOTA

Hospitals and Sanatoriums

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Belcourt, 200—Rolette							
Turtle Mountain Hospital	Gen	IA	42	27	10	151	1,019
Bismarck, 15,496—Burleigh							
Bismarck Hospital+▲○	Gen	NPAssn	154	138	24	592	4,792
St Alexius Hospital▲○	Gen	Church	243	164	32	1 065	7,106
Bottineau, 1,789—Bottineau							
St Andrew's Hospital○	Gen	Church	81	51	16	243	1,784
Carrington, 1,850—Foster							
Carrington Hospital	Gen	Church	25	12	5	140	489
Crosby, 1,404—Divide							
St Luke's Hospital	Gen	Church	33	7	8	148	716
Devils Lake, 6,204—Ramsey							
General Hospital▲	Gen	NPAssn	42	17	8	141	978
Mercy Hospital▲	Gen	Church	85	40	23	463	2,243
Dickinson, 5,839—Stark							
St Joseph's Hospital▲	Gen	Church	90	63	26	947	3,994

Key to symbols and abbreviations is on page 88

NORTH DAKOTA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Drayton 685—Pembina							
St Elizabeth's Hospital	Gen	Church	13	10	6	84	647
Elbowoods 175—McLean							
Fort Berthold Indian Hosp	Gen	IA	19	8	6	45	408
Elgin 583—Grant							
Lorenzen Memorial Hospital	Gen	NPAssn	31	13	12	200	1 062
Fargo 32 580—Cass							
St John's Hospital★▲○	Gen	Church	180	141	40	1 201	6 634
St Luke's Hospital★+▲○	Gen	Church	127	114	20	861	5 470
Veterans Admin Center▲	Gen	Vet	319	226			2,256
Fort Totten 100—Benson							
Fort Totten Indian Hospital	Gen	IA	31	15	4	54	636
Fort Yates 1 000—Sioux							
Standing Rock Indian Hosp	Gen	IA	47	18	7	79	622
Grafton 4 070—Walsh							
Grafton Deaconess Hospital	Gen	Church	65	38	15	556	1,934
Grand Forks 20 228—Grand Forks							
Grand Forks Deaconess Hospital★▲○	Gen	NPAssn	140	125	22	835	5,242
St Michael's Hospital▲	Gen	Church	77	64	20	553	3 009
Harvey 1 851—Wells							
St Aloisius Hospital	Gen	Church	48	27	12	354	1 773
Jamestown 8 790—Stutsman							
Jamestown Hospital▲	Gen	NPAssn	76	53	12	325	2,501
State Hospital for the Insane▲	Ment	State	2 084	2 074			473
Trinity Hospital▲	Gen	Church	100	64	18	468	2,900
Kenmare 1,528—Ward							
Kenmare Deaconess Hospital	Gen	Church	33	19	10	176	1 183
Langdon 1 546—Cavalier							
Mercy Hospital	Gen	Church	35	11	12	271	998
Mandan 6 685—Morton							
Mandan Deaconess Hospital	Gen	Church	38	25	10	331	1 257
Mayville 1 351—Traill							
Union Hospital	Gen	NPAssn	19	17	4	156	677
Minot 16 577—Ward							
St Joseph's Hospital▲○	Gen	Church	141	84	19	574	4,088
Trinity Hospital★+▲○	Gen	Church	188	164	32	923	6,154
New Rockford, 2 017—Eddy							
City Hospital	Gen	Church	40	30	9	179	1 193
Northwood 1 063—Grand Forks							
Northwood Deaconess Hosp	Gen	Church	25	12	6	118	622
Oakes 1 665—Dickey							
Mercy Hospital	Gen	Church	15	9	7	184	457
Rolette 460—Rolette							
Community Hospital	Gen	NPAssn	23	9	6	95	589
Rolla 1 005—Rolette							
Rolla Community Hospital	Gen	City	26	15	8	110	1 136
Rugby, 2,215—Pierce							
Good Samaritan Hospital▲○	Gen	Church	70	65	15	359	3 146
San Haven —Rolette							
North Dakota State Tuberculosis Sanatorium▲	TB	State	328	262			205
Sharon 371—Steele							
Sharon Community Hospital	Gen	City	15	6	5	85	311
Valley City 5,917—Barnes							
Mercy Hospital▲○	Gen	Church	100	71	15	577	3,291
Wahpeton 3 747—Richland							
St Mary Hospital	Gen	Church	28	21	6	147	722
Williston 5 790—Williams							
Good Samaritan Hospital▲	Gen	NPAssn	37	27	12	316	1,520
Mercy Hospital▲	Gen	Church	75	46	20	339	2,993

Related Institutions

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Fargo 32 580—Cass							
Cass County Hospital	Gen	County	40	14	4	5	239
City Detention Hospital	Iso	City	10	2			39
Florence Crittenton Home	Mat	NPAssn	56	14	6	40	100
Grafton, 4 070—Walsh							
Grafton State School	MeDe	State	1 040	1 009			56
Hazen 662—Mercer							
Memorial Hospital	Gen	Church	26	13	8	118	1 709
Powers Lake 404—Burke							
Powers Lake Community Hospital	Gen	City	12	8	5	100	350

OHIO

Hospitals and Sanatoriums

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Akron 244,791—Summit							
Children's Hospital+▲⊖	Chil	NPAssn	185	121			6,823
City Hospital★+▲○	Gen	NPAssn	418	395	72	4 502	14,858
Edwin Shaw Sanatorium▲	TB	County	120	119			157
Peoples Hospital★+▲○	Gen	NPAssn	210	205	50	2 486	9,881
St. Thomas Hospital★+▲○	Gen	Church	205	181	30	2,022	11,034
Alliance, 22,405—Stark							
Alliance City Hospital▲○	Gen	City	94	72	22	1 100	3,885
Amherst, 2 896—Lorain							
Pleasant View Sanatorium	TB	County	81	74			79
Ashland 12 453—Ashland							
Samaritan Hospital▲○	Gen	NPAssn	48	37	15	682	2 019
Ashtabula, 21 405—Ashtabula							
Ashtabula General Hospital	Gen	NPAssn	72	77	23	879	3,193
Athens 7 696—Athens							
Athens State Hospital	Ment	State	1 743	1 713			339
Sheltering Arms Hospital	Gen	Corp	54	82	9	532	2,227
Barberton 24 028—Summit							
Citizens Hospital	Gen	NPAssn	78	53	30	1,055	3,289
Barnesville 5,002—Belmont							
Barnesville Hospital	Gen	NPAssn	21	12	[illegible]	255	768

OHIO—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Bedford 7,390—Cuyahoga							
Bedford Municipal Hospital	Gen	City	35	34	13	430	1 7[illegible]
Bellaire 18 709—Belmont							
City Hospital▲	Gen	NPAssn	60	39	13	548	1,814
Bellevue 6,127—Huron							
Bellevue Hospital	Gen	NPAssn	41	25	11	821	1,105
Berea 6 025—Cuyahoga							
Community Hospital▲	Gen	NPAssn	107	77	34	850	3,555
Brecksville 1,900—Cuyahoga							
Veterans Admin. Hospital▲+	TB	Vet	264	255			356
Bryan 5 404—Williams							
Cameron Hospitals	Gen	NPAssn	16	16	5	353	934
Bucyrus 9 727—Crawford							
Bucyrus City Hospital	Gen	City	51	41	14	604	1 757
Cambridge 15 044—Guernsey							
Cambridge State Hospital	Ment	State	2,300	2,181			614
St Francis Hospital	Gen	NPAssn	114	33	27	135	1 481
Swan Hospital	Gen	NPAssn	35	30	7	403	1 127
Canton 108 401—Stark							
Aultman Hospital★+▲○	Gen	NPAssn	301	227	72	2,603	10,363
Little Flower Hospital	Unit of Mercy Hospital						
Mercy Hospital★+▲○	Gen	Church	235	209	45	2,463	10 6[illegible]2
Molly Stark Sanatorium▲	TB	County	150	146			131
Celina 4,841—Mercer							
Gibbons Hospital	Gen	NPAssn	39	23	15	890	1 846
Otis Hospital	Gen	NPAssn	25	19	5	211	945
Chagrin Falls 2 505—Cuyahoga							
Windsor Hospital+▲	N&M	Corp	100	91			706
Chillicothe 20,129—Ross							
Chillicothe Hospital▲	Gen	NPAssn	65	49	16	722	2 088
Federal Reformatory Hosp ▲	Inst	USPHS	70	17			750
Mount Logan Sanatorium	TB	Counties	78	56			468
Veterans Admin Hospital▲	Ment	Vet	2 155	2 138			791
Cincinnati 455 610—Hamilton							
Bethesda Hospital★+▲○	Gen	Church	218	193	60	2 635	8,690
Children's Hospital+▲○	Chil	Church	196	135			6,258
Christ Hospital★+▲○	Gen	Church	372	335	51	2 462	11,960
Christian R. Holmes Hosp ▲	Gen	City	52	47			1 493
Cincinnati General Hospital★+▲○	Gen	City	850	623	65	3 017	15 449
Cincinnati Sanitarium▲	N&M	Corp	100	98			471
Deaconess Hospital★+▲○	Gen	Church	168	140	30	1 042	5 112
Dunham Hospital+▲	TB	County	529	407			409
Good Samaritan Hosp ★+▲○	Gen	Church	556	462	80	3 867	16 783
Hamilton County Home and Chronic Disease Hospital	Chr	County	365	355			405
Jewish Hospital★+▲○	Gen	NPAssn	204	263	45	2 429	12 763
Longview State Hospital+▲	Ment	State	3,205	3 090			711
Ohio Hospital for Women and Children	Unit of Bethesda Hospital						
Our Lady of Mercy Hosp ▲	Gen	Church	54	42	18	916	2,242
St Mary's Hospital★+▲	Gen	Church	200	135	19	557	5 001
Circleville 7,982—Pickaway							
Berger Municipal Hospital	Gen	CyCo	25	20	10	397	1 39[illegible]
Cleveland 878,336—Cuyahoga							
Babies and Childrens Hosp	Unit of University Hospitals						
Booth Memorial Home and Hospital▲	Mat	Church	27	17	28	790	890
City Hospital★+▲○	Gen	City	1 044	815	52	1 406	11 457
Cleveland Clinic Hospital+▲	Gen	NPAssn	275	268			8,577
Cleveland State Hospital+	Ment	State	2,800	2,479			597
Cleveland State Receiving Hospital+○	Ment	State	375	375			975
Evangelical Deaconess Hospital★▲	Gen	Church	140	86	32	1 607	6 615
Fairview Park Hospital★+▲○	Gen	Church	150	143	51	2 427	7 192
Glenville Hospital★▲	Gen	NPAssn	120	122	30	908	4 474
Grace Hospital▲	Gen	NPAssn	64	40	12	351	2,255
Huron Road Hospital	See East Cleveland						
John H Lowman Memorial Pavilion	Unit of City Hospital						
Lakeside Hospital	Unit of University Hospitals						
Leonard C Hanna House	Unit of University Hospitals						
Lutheran Hospital★+▲○	Gen	Church	133	113	2[illegible]	1 547	5 181
Maternity Hospital	Unit of University Hospitals						
Mount Sinai Hospital★+▲○	Gen	NPAssn	251	210	45	2 964	11 441
Polyclinic Hospital▲	Gen	NPAssn	120	79	24	877	5 154
St Alexis Hospital★+▲○	Gen	Church	234	212	21	1,342	10 2[illegible]
St Ann's Maternity Hospital+▲○	Mat	Church	41	35	41	2 169	2,289
St. John's Hospital★+▲○	Gen	Church	230	199	45	2,004	8,919
St Luke's Hospital★+▲○	Gen	Church	362	303	65	2,917	14 922
St. Vincent Charity Hospital★+▲○	Gen	Church	29[illegible]	24			[illegible]
Sunny Acres Cuyahoga County Tuberculosis Hospital+▲	TB	County	390	390			438
U S Marine Hospital★▲	GenTb	USPHS	268	216			2 725
University Hospitals★+▲○	Gen	NPAssn	797	658	115	5 146	22,[illegible]
Veterans Admin Hospital+▲	Gen	Vet	1 000	851			9,370
Woman's Hospital+▲	Gen	NPAssn	104	79	18	622	4,222
Cleveland Heights 54,992—Cuyahoga							
Doctors Hospital★+	Gen	NPAssn	105	130	20	[illegible]	5 715
Columbus 306 087—Franklin							
Alum Crest Hospital	Chr	County	145	14			159
Benjamin Franklin Hosp +▲○	TB	County	[illegible]	[illegible]			299
Children's Hospital+▲○	Chil	NPAssn	200	167			4,129
Columbus State Hospital+▲	Ment	State	2 400	2,[illegible]			[illegible]
Grant Hospital★+▲○	Gen	NPAssn	[illegible]	[illegible]	[illegible]	2 11[illegible]	10 [illegible]
McMillen Sanitarium	N&M	Corp	40	2			391
Mercy Hospital▲	Gen	NPAssn	[illegible]	[illegible]	15	[illegible]	[illegible]
Mount Carmel Hospital★+▲○	Gen	Church	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

OHIO—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Ohio State University Hospital★+▲○	Gen	State	270	234	35	2,080	8,847
St Ann's Maternity Hosp +▲	Mat	Church	30	26	30	1,972	2,193
St Anthony Hospital▲	Gen	Church	200	184			2,627
St Francis Hospital▲○	Gen	State	162	131			4,082
White Cross Hospital★+▲○	Gen	Church	350	281	62	3,057	11,302
Conneaut, 9,355—Ashtabula							
Brown Memorial Hospital	Gen	NPAssn	39	28	11	448	1,878
Coshocton, 11,509—Coshocton							
Coshocton Memorial Hospital	Gen	NPAssn	60	40	22	675	2,550
Crestline, 4,337—Crawford							
Crestline Emergency Hosp	Gen	NPAssn	23	14	4	130	680
Cuyahoga Falls, 20,546—Summit							
Summit County Receiving Hospital	Ment	State	65	40			317
Dayton, 210,718—Montgomery							
Dayton State Hospital▲	Ment	State	1,754	1,690			421
Good Samaritan Hosp ▲○	Gen	Church	300	253	65	4,404	13,069
Miami Valley Hospital★+▲○	Gen	NPAssn	451	350	56	3,730	16,435
St Ann's Maternity Hospital	Unit of St Elizabeth Hospital						
St Elizabeth Hospital★+▲○	Gen	Church	335	258	40	2,703	12,527
Stillwater Sanatorium▲	TB	Counties	150	136			247
Veterans Admin Center+▲	Gen	Vet	1,316	931			5,998
Defiance, 9,744—Defiance							
Defiance Municipal Hospital	Gen	City	34	20	11	590	1,780
Delaware, 8,944—Delaware							
Jane M Case Hospital	Gen	NPAssn	55	39	10	403	2,005
Dennison, 4,413—Tuscarawas							
Twin City Hospital	Gen	NPAssn	41	30	12	602	1,808
Dover, 9,691—Tuscarawas							
Union Hospital▲	Gen	NPAssn	60	51	15	978	3,093
East Cleveland, 39,495—Cuyahoga							
Huron Road Hospital★+▲○	Gen	NPAssn	284	230	78	2,859	10,042
East Liverpool 23,555—Columbiana							
East Liverpool City Hosp ▲○	Gen	NPAssn	126	86	24	1,152	4,469
Elyria, 25,120—Lorain							
Elyria Memorial Hospital and Gates Hospital for Crippled Children+▲○	Gen	NPAssn	142	129	33	1,241	4,636
Findlay, 20,228—Hancock							
Findlay Hospital▲	Gen	NPAssn	81	61	12	887	3,928
Fremont, 14,710—Sandusky							
Community Hospital	Gen	NPAssn	17	10	4	78	448
Memorial Hospital▲	Gen	NPAssn	110	77	32	924	3,552
Galion, 8,685—Crawford							
Galion City Hospital	Gen	City	35	27	11	471	1,531
Gallipolis, 7,832—Gallia							
Gallipolis State Institute	Epil	State	1,932	1,978			267
Holzer Hospital▲○	Gen	NPAssn	75	65	13	630	4,289
Garfield Heights 16,989—Cuyahoga							
Marymount Hospital	Gen	Church	125		36	Estab	1949
Green Springs 920—Sandusky and Seneca							
Oak Ridge Sanatorium	TB	Indiv	127	91			180
Greenville, 7,745—Darke							
Wayne Hospital▲	Gen	NPAssn	55	52	18	770	3,006
Hamilton, 50,592—Butler							
Fort Hamilton Hospital▲	Gen	NPAssn	115	84	25	1,072	4,480
Mercy Hospital★+▲○	Gen	Church	300	218	45	1,558	8,769
Hillsboro, 4,713—Highland							
Highlands Community Hosp	Gen	NPAssn	30	19	6	290	932
Ironton, 15,851—Lawrence							
Lawrence County General Hospital	Gen	County	72	65	16	906	3,621
Kenton 7,593—Hardin							
McKitrick Hospital	Gen	NPAssn	32	25	10	218	881
San Antonio Hospital	Gen	Church	75	40	16	544	2,333
Lakewood, 69,160—Cuyahoga							
Lakewood Hospital★+▲	Gen	City	129	118	28	1,266	5,942
Lancaster, 21,940—Fairfield							
Lancaster Fairfield County Joint Hospital▲○	Gen	Cy Co	72	70	22	914	3,495
Lima, 44,711—Allen							
District Tuberculosis Hosp	TB	Counties	126	118			148
Lima Memorial Hospital★▲○	Gen	NPAssn	239	142	41	1,248	6,359
Lima State Hospital	Ment	State	1,200	1,161			531
St Rita's Hospital★+▲○	Gen	Church	300	212	50	1,017	11,372
Lodi, 1,304—Medina							
Lodi Hospital	Gen	NPAssn	40	28	10	424	1,644
Logan 6,177—Hocking							
Hocking Valley Hospital	Gen	NPAssn	33	21	10	407	1,230
Lorain, 44,125—Lorain							
St Joseph's Hospital▲	Gen	Church	131	105	30	1,315	4,740
Macedonia, 734—Summit							
Hawthornden State Hospital	Ment	State	1,174	1,125			205
Mansfield, 37,154—Richland							
Mansfield General Hosp ▲○	Gen	NPAssn	175	158	37	1,744	7,359
People's Hospital	Gen	NPAssn	52	38			1,175
Richland County Tuberculosis Sanatorium	TB	County	28	27			84
Marietta, 14,543—Washington							
Marietta Memorial Hospital	Gen	NPAssn	64	59	12	848	2,902
Marion, 30,817—Marion							
Marion City Hospital	Gen	City	110	86	22	1,246	4,317
Sawyer Sanatorium▲	Nerv	Indiv	50	29			110
Martins Ferry, 14,729—Belmont							
Martins Ferry Hospital▲○	Gen	NPAssn	120	116	30	992	5,258
Massillon, 26,644—Stark							
Massillon City Hospital▲○	Gen	NPAssn	152	110	34	1,270	6,402
Massillon State Hospital+▲○	Ment	State	3,087	3,002			949

OHIO—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
McConnelsville, 1,895—Morgan							
Rocky Glen Sanatorium	TB	Corp	135	124			164
Medina, 4,350—Medina							
Medina Community Hospital	Gen	NPAssn	36	30	12	325	1,560
Middletown, 31,220—Butler							
Middletown Hospital▲○	Gen	NPAssn	155	110	37	1,706	5,767
Millersburg, 2,239—Holmes							
Holmes County Joel E Pomerene Memorial Hosp	Gen	County	35	19	5	459	1,361
Mount Vernon, 10,122—Knox							
Avalon Sanatorium	TB	NPAssn	87	77			127
Mercy Hospital	Gen	Church	92	63	17	728	3,635
Mount Vernon Hospital Sanitarium	Gen	NPAssn	54	29	8	229	1,584
Mount Vernon State Hosp ▲	TB	State	550	358			383
Munroe Falls, 511—Summit							
Summit County Home Hospital	Chr	County	137	135			102
Napoleon, 4,825—Henry							
S M Heller Memorial Hospital	Gen	City	20	14	7	352	866
Newark, 31,487—Licking							
Licking County Tuberculosis Sanatorium	TB	County	51	48			71
Newark Hospital▲○	Gen	NPAssn	119	86	23	1,153	4,643
New London, 1,656—Huron							
New London Hospital	Gen	NPAssn	9	6	3	111	360
New Philadelphia, 12,328—Tuscarawas							
Tuscarawas Valley Sanatorium	TB	County	35	29			88
Norwalk, 8,211—Huron							
Norwalk Memorial Hosp	Gen	NPAssn	41	24	16	523	1,660
Oberlin, 4,305—Lorain							
Allen Hospital, Oberlin College▲	Gen	NPAssn	45	29	11	815	1,752
Oxford, 1,756—Butler							
Miami University Student Hospital	Inst	State	66	6			1,595
Painesville, 12,235—Lake							
Lake County Memorial Hospital	Gen	County	125	83	30	1,097	4,168
Perrysburg, 3,457—Wood							
Rheinfrank Hospital	Goiter	Indiv	11	3			97
Piqua, 16,049—Miami							
Memorial Hospital▲	Gen	NPAssn	77	68	14	979	3,485
Pomeroy, 3,581—Meigs							
Meigs General Hospital	Gen	Corp	20	14	5	166	788
Port Clinton, 4,505—Ottawa							
H B Magruder Memorial Hospital	Gen	NPAssn	46	47	18	383	1,638
Portsmouth, 40,466—Scioto							
Mercy Hospital○	Gen	Church	85	79	16	931	4,988
Portsmouth General Hosp ○	Gen	City	90	78	20	695	3,547
Ravenna, 8,538—Portage							
Robinson Memorial Portage County Hospital▲	Gen	County	110	80	30	1,108	4,531
St Clairsville, 2,797—Belmont							
Belmont Sanatorium	TB	County	56	49			49
Salem, 12,301—Columbiana							
Central Clinic and Hosp ▲	Gen	NPAssn	38	28	10	431	1,820
Salem City Hospital▲○	Gen	NPAssn	105	68	28	780	3,189
Sandusky, 24,874—Erie							
Good Samaritan Hospital▲	Gen	NPAssn	53	45	12	441	2,261
Providence Hospital▲○	Gen	Church	66	57	19	523	3,351
Shelby, 6,643—Richland							
Shelby Hospital	Gen	NPAssn	54	31	16	381	1,827
Sidney, 9,790—Shelby							
Wilson Memorial Hospital▲	Gen	NPAssn	58	37	14	668	2,159
South Euclid, 6,146—Cuyahoga							
Rainbow Hospital for Crippled and Convalescent Children▲	Unit of University Hospitals, Cleveland						
Springfield, 70,662—Clark							
Clark County Tuberculosis Sanatorium▲	TB	County	120	78			117
Springfield City Hosp ★+▲○	Gen	City	266	217	50	2,716	10,915
Steubenville, 37,651—Jefferson							
Gill Memorial Hospital	Gen	Church	63	61	17	943	3,467
Ohio Valley Hospital▲○	Gen	NPAssn	213	187	40	1,722	8,597
Tiffin, 16,102—Seneca							
Mercy Hospital	Gen	Church	90	60	20	937	3,122
Tiffin State Hospital	Ment	State	615	599			60
Toledo, 282,349—Lucas							
Contagious Disease Hospital	Unit of Maumee Valley Hospital						
Flower Hospital★▲○	Gen	Church	170	134	37	1,076	5,643
Maumee Valley Hospital★+▲○	Gen	County	202	161	33	354	4,011
Mercy Hospital★+▲○	Gen	Church	284	269	60	2,909	12,101
Riverside Hospital★▲○	Gen	NPAssn	154	115	44	1,300	5,001
Robinwood Hospital▲○	Gen	Church	88	65	15	486	3,517
St Vincent's Hospital★+▲○	Gen	Church	310	288	50	1,636	10,090
Toledo Hospital★+▲○	Gen	NPAssn	266	235	54	2,482	9,495
Toledo State Hospital▲○	Ment	State	2,042	2,846			1,113
William W Roche Memorial Hospital	TB	County	195	164			271
Troy, 9,697—Miami							
Stouder Memorial Hospital▲	Gen	NPAssn	100	64	20	700	3,194
Urbana, 8,335—Champaign							
Champaign County Hospital	Gen	County	44	33	10	464	1,261
Van Wert, 9,227—Van Wert							
Van Wert County Hospital	Gen	NPAssn	55	40	12	491	2,124

Key to symbols and abbreviations is on page 38

OHIO—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Wadsworth 6 495—Medina							
Wadsworth Municipal Hosp	Gen	City	37	34	16	560	1 412
Warren 42,837—Trumbull							
St Joseph s Riverside Hospital▲	Gen	Church	113	93	27	948	5 9 5
Trumbull County Tuberculosis Hospital	TB	County	48	39			55
Trumbull Memorial Hosp ▲○	Gen	NPAssn	194	149	40	1,818	7 603
Wauseon 3 016—Fulton							
De Ette Harrison Detwiler Memorial Hospital▲	Gen	NPAssn	51	34	11	639	2,074
Willard 4,261—Huron							
Willard Municipal Hospital	Gen	City	32	25	10	310	1,290
Wilmington 5,971—Clinton							
Dr Kelley Hale Surgical Hospital	Gen	Indiv	15	7	7	113	397
Wooster 11,543—Wayne							
Beeson Hospital	Gen	NPAssn	30	26	5	490	1 896
Community Hospital	Gen	NPAssn	26	17	7	356	1 300
Worthington 1 569—Franklin							
Harding Sanitarium+▲	N&M	Corp	85	79			525
Xenia 10 633—Greene							
McClellan Hospital▲	Gen	Corp	20	15	4	130	556
Youngstown 167 720—Mahoning							
Mahoning Tuberculosis Sanatorium+○	TB	County	177	167			219
St Elizabeth s Hospital*+▲○	Gen	Church	330	290	60	2 501	12 862
Youngstown Hospital*+▲○	Gen	NPAssn	627	507	99	3 703	20,250
Youngstown Receiving Hospital○	Ment	State	84	76			934
Zanesville 37 500—Muskingum							
Bethesda Hospital▲○	Gen	NPAssn	145	123	25	982	5,349
Good Samaritan Hospital▲○	Gen	Church	149	124	32	1 365	4 830

Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Akron 244 791—Summit							
Goodyear Hospital	Indus	NPAssn	18	4		•	130
Apple Creek 510—Wayne							
Apple Creek State School	MeDe	State	794	774			69
Bluffton 2,077—Allen							
Bluffton Community Hosp	Gen	NPAssn	24	14	10	317	676
Cincinnati 455 610—Hamilton							
Catherine Booth Home and Hospital	Mat	Church	13	6	25	305	345
Children s Convalescent Home of the Cincinnati Orphan Asylum▲	Conv	NPAssn	100	62			143
Children s Home (Hanna Hospital)	Inst	NPAssn	16	4			1 485
Home for Incurables	Incur	NPAssn	66	64			10
Madeline Marie Nursing Home	Conv	Indiv	44	40			67
St Francis Hospital	ChrCancer	Church	300	271			2 946
St George Hospital for Convalescent Care	Conv	Church	40	28			549
St Joseph Maternity Hospital and Infant Home	Mat	Church	10	4	10	129	129
Cleveland 878,336—Cuyahoga							
Children s Fresh Air Camp and Hospital	Conv	NPAssn	60	60			134
Ingleside Home	N&M	NPAssn	140	125			657
Mary B Talbert Home and *Hospital*	Mat	Church	14	10	18	458	554
Columbus 306 087—Franklin							
Columbus State School	MeDe	State	2,100	2 159			171
Florence Crittenton Home	Mat	NPAssn	36	32	24	150	156
Neil Training School	MeDe	Indiv	12	12		•	12
Ohio Penitentiary Hospital	Inst	State	165	120			2 016
Resthaven	Conv	Indiv	35	28			150
Dayton 210 718—Montgomery							
Barney Convalescent Home for Crippled Children▲	Orth	NPAssn	30	25		•	163
Delaware 8 944—Delaware							
Girls Industrial School Hospital	Inst	State	32	12		•	706
Euclid 17 866—Cuyahoga							
Rose-Mary The Johanna Grasselli Home for Crippled Children	Orth	Church	50	40		•	40
Glendale 2,859—Hamilton							
Maple Knoll Hospital and Home for the Friendless	Mat	NPAssn	35	20	18	530	627
Granville 1 502—Licking							
Whisler Hall Memorial Hosp	Inst	NPAssn	38	4			536
Greenfield, 4 228—Highland							
Greenfield Municipal Hospital	Gen	City	23	13	9	380	1 046
Hamilton 50,592—Butler							
Butler County Tuberculosis Sanatorium	TB	Church	21	18			46
Jamestown 1 079—Greene							
Haines Maternity Hospital	Mat	Indiv	6	2	7	101	105
Lancaster 21 940—Fairfield							
Boys Industrial School Hospital	Inst	State	125	10		•	450
North Canton 2 988—Stark							
Shadyside Hospital	Conv	NPAssn	18	4	8	27	1 649
Orient 175—Pickaway							
Orient State School	MeDe	State	2 927	2,908		•	264
Reynoldsburg 652—Franklin							
Nightingale Cottage Convalescent Hospital	Conv	NPAssn	30	25		•	60

OHIO—Continued

Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
State Soldiers Home 900—Erie							
Ohio Soldiers and Sailors Home Hospital	Inst	State	200	125			410
Toledo 282,349—Lucas							
Ashland Avenue Hospital for Convalescents	Conv	Indiv	21	21		Estab	1949
Lucas County Hospital Annex	Chr	County	108	90			60
Toledo Society for Crippled Children Convalescent Home▲	Orth	NPAssn	80	53			280
Warrensville (Cleveland P O), 1 175—Cuyahoga							
Cleveland Municipal Chronic *Hospital*	Chr	City	625	556			127
Wickliffe 3 155—Lake							
Ridgecliff Sanitarium	N&M	Indiv	50	48			84
Wickhaven Sanitarium	N&M	NPAssn	12	10			42
Wooster 11 543—Wayne							
Hygeia Hall	Inst	NPAssn	25	2			215
Xenia 10 633—Greene							
Ohio Soldiers and Sailors Orphans Home Hospital	Inst	State	80	10			800

OKLAHOMA

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Ada 15 143—Pontotoc							
Valley View Hospital▲	Gen	NPAssn	80	59	18	657	3 780
Alva 5 055—Woods							
Alva General Hospital	Gen	City	39	25	7	258	1 499
Anadarko 5,579—Caddo							
Anadarko Hospital	Gen	Part	26	17	6	257	1 052
Ardmore 16 886—Carter							
Ardmore Sanitarium and Hospital	Gen	NPAssn	60	20	5	135	936
Hardy Sanitarium▲	Gen	Indiv	64	24	18	394	1,645
Atoka 2 548—Atoka							
Fina Clinic and Hospital	Gen	Indiv	14		6	Estab	1949
Bartlesville 16,267—Washington							
Washington County Memorial Hospital	Gen	County	72	59	19	801	3 320
Beaver 1 166—Beaver							
Beaver Hospital	Gen	Part	20	5	7	116	906
Blackwell 8 537—Kay							
Blackwell General Hospital	Gen	Church	53	32	10	241	1 470
Bristow 6 050—Creek							
Sisler Hospital	Gen	Indiv	17	7	5	96	592
Carnegie 1 740—Caddo							
Carnegie Hospital	Gen	Corp	14	6	5	147	423
Cherokee 2,553—Alfalfa							
Masonic Hospital	Gen	NPAssn	32	21	5	135	1 136
Chickasha 14 111—Grady							
Chickasha Hospital and Clinic	Gen	Part	54	25	12	257	1,875
General Hospital	Gen	Indiv	17	7	6	185	420
Claremore, 4 134—Rogers							
Claremore General Hospital	Gen	Indiv	20	8	9	30	228
Claremore Indian Hospital▲	Gen	IA	80	58	18	288	1 311
Clinton 6 736—Custer							
Clinton Indian Hospital	Gen	IA	27	17	10	61	601
Western Oklahoma State Hospital▲○	Gen	State	125	56	11	853	1 709
Western Oklahoma Tuberculosis Sanatorium▲	TB	State	256	224			323
Cordell 2,776—Washita							
Florence Hospital	Gen	Indiv	22	5	6	121	314
Cushing 7 703—Payne							
Masonic Hospital▲	Gen	NPAssn	59	32	8	341	1 400
Duncan 9,207—Stephens							
Lindley Hospital	Gen	Indiv	25	20	4	240	1,525
Patterson Hospital	Gen	Part	30	22	8	295	1 40[illegible]
Weedn Hospital	Gen	Indiv	60	No data supplied			
Durant 10 027—Bryan							
Durant Hospital	Gen	Part	25	15	10	300	9[illegible]5
Evergreen Sanitarium	Gen	Indiv	17	11	5	46	457
Haynie Hospital and Clinic	Gen	Indiv	11	5	4	63	277
Edmond 4 002—Oklahoma							
Edmond Hospital	Gen	Corp	20	11	10	180	
Elk City 5 021—Beckham							
Community Hospital	Gen	NPAssn	100	26	10	244	2 012
Tisdal Hospital	Gen	Indiv	30	5	9	114	875
El Reno 10 078—Canadian							
Catto Hospital	Gen	Indiv	12	10	2	15	150
El Reno Sanitarium	Gen	Part	38	2[illegible]	8	216	677
Federal Reformatory Hosp ▲	Inst	USPHS	44	10			748
Enid 28 081—Garfield							
Enid General Hospital▲○	Gen	NPAssn	110	87	20	287	2 410
St Mary s Hospital and Annex▲○	Gen	Church	150	138	25	1 050	5 411
Fort Sill —Comanche							
Station Hospital▲	Gen	Army	250	135	18	68	6 [illegible]
Fort Supply 414—Woodward							
Western State Hospital	Ment	State	1 500	1,302			291
Frederick 5 109—Tillman							
Frederick Clinic Hospital	Gen	Part	18	7	8	181	757
Grandfield 1 116—Tillman							
Grandfield Hospital	Gen	Indiv	13	8	3	40	1

OKLAHOMA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Granite, 1,058—Greer							
Lewis Hospital	Gen	Indiv	17	8	5	28	293
Guthrie, 10 018—Logan							
Benedictine Heights Hospital	Gen	Church	90	35	17	356	1,517
Guymon, 2,290—Texas							
Guymon Municipal Hospital	Gen	City	25		8	Estab	1949
Henryetta, 6,995—Okmulgee							
Henryetta Hospital	Gen	Indiv	25	16	3	121	788
John Taylor Hospital	Gen	Indiv	14	10	3	107	608
Hobart, 5,177—Kiowa							
General Hospital	Gen	Part	42	14	12	305	1,787
Holdenville, 6,632—Hughes							
St Francis Hospital	Gen	Church	30	23	12	211	1,380
Hollis, 2,732—Harmon							
Husband Memorial Hospital	Gen	Indiv	18	9	6		813
Hominy, 3,267—Osage							
Hominy City Hospital	Gen	City	14	No data supplied			
Hugo, 5,909—Choctaw							
Johnson Hospital	Gen	Indiv	9	3	6	105	300
Lawton, 18,055—Comanche							
Angus Hospital	Gen	Part	18	11	12	351	927
Kiowa Indian Hospital▲	Gen	IA	150	65	16	242	2,112
Southwestern Clinic Hospital	Gen	Corp	80	34	24	382	1,975
Mangum, 4,193—Greer							
Southwest Baptist Hospital	Gen	Church	50		12	Estab	1949
McAlester, 12,401—Pittsburg							
Albert Pike Hospital	Gen	NPAssn	48	30	7	270	2,276
St Mary's Hospital▲	Gen	Church	60	30	15	486	2,224
Miami, 8,345—Ottawa							
Miami Baptist Hospital	Gen	Church	75	27	19	467	1,984
Mooreland, 811—Woodward							
Northwest Community Hosp	Gen	NPAssn	30	22	6	130	1,339
Muskogee 32,332—Muskogee							
Muskogee General Hospital○	Gen	City	118	67	30	835	3,939
Oklahoma Baptist Hosp ▲○	Gen	Church	68	58	12	357	2,331
Veterans Admin Hospital▲	Gen	Vet	386	312			3,776
Norman, 11,429—Cleveland							
Central Oklahoma State Hospital+▲○	Ment	State	3,0 0	2,745		*	1,151
Ellison Infirmary▲	Inst	State	50	11			1,420
Norman Municipal Hospital	Gen	City	58	41	22	792	2,563
Nowata 3,901—Nowata							
Nowata General Hospital	Gen	NPAssn	32	14	6	125	850
Okarche 453—Canadian and Kingfisher							
Okarche Memorial Hospital	Gen	Church	19	13	8	154	681
Okeene, 1,079—Blaine							
Okeene Municipal Hospital	Gen	City	10	8	5	63	305
Okemah, 3,811—Okfuskee							
Clinic Hospital	Gen	Indiv	10	6	3	148	559
Oklahoma City, 204,424—Oklahoma							
Bone and Joint Hospital McBride Clinic+▲	Orth	Corp	90	75			3,188
Capitol Hill General Hospital	Gen	Corp	50	32	18	508	1,938
Coyne Campbell Sanitarium	N&M	Corp	70	48			950
Mercy Hospital★▲○	Gen	Church	150	140	26	893	6,132
Oklahoma Medical Center	Ven	State	160	50			3,235
Polyclinic Hospital	Gen	Indiv	85	44	16	430	2,127
St Anthony Hospital★+▲○	Gen	Church	375	335	75	2,985	12,700
Station Hospital	Gen	USAF	25	7			584
University Hospitals★+▲○	GenOr	State	450	355	35	1,265	7,106
Veterans Admin Hospital+▲	Gen	Vet	220	206			3,344
Wesley Hospital★+▲○	Gen	Part	200	163	33	1,472	8,673
Okmulgee 16,051—Okmulgee							
Kendall Buell Hospital	Gen	Part	13	9	2	11	606
Okmulgee City Hospital	Gen	City	50	27	10	328	1,422
Pauls Valley, 5 104—Garvin							
Lindsey Johnson Hospital	Gen	Part	28	21	6	205	1,916
Pauls Valley State Hospital	Epil	State	380	378			95
Pawhuska, 5,443—Osage							
Oklahoma Home Infirmary	Gen	County	46	6	3	58	270
Pawhuska Municipal Hosp	Gen	City	32	20	8	158	1,544
Pawnee, 2,742—Pawnee							
Pawnee Ponca Indian Hosp ▲	Gen	IA	24	23	6	130	803
Picher, 5,848—Ottawa							
Picher Hospital	Gen	Part	17	8	2	16	873
Ponca City, 16,794—Kay							
Ponca City Hospital▲○	Gen	Church	110	75	25	745	3,303
Prague, 1,422—Lincoln							
Rollins Hospital	Gen	Indiv	10	4	5	132	464
Pryor, 2,501—Mayes							
Whitaker Hospital	Gen	Part	18	8	5	198	1,062
Sapulpa, 12,249—Creek							
Sapulpa City Hospital	Gen	City	20	12	6	258	1,068
Sayre, 3,037—Beckham							
Sayre Municipal Hospital	Gen	City	20	11	6	198	960
Seminole, 11,547—Seminole							
Seminole Municipal Hospital	Gen	City	21	16	6	368	1,140
Sentinel, 1,058—Washita							
McMurry and Stowers Hosp	Gen	Part	25	9	6	91	534
Shattuck, 1,275—Ellis							
Newman Memorial Hospital	Gen	NPAssn	40	16	8	109	1,432
Shawnee, 22,053—Pottawatomie							
Anderson, Carson and Hughes Hospital▲	Gen	Part	25	20	6	240	1,264
Baxter Hospital	Gen	Part	24	15	8	281	1,095
Shawnee Indian Sanatorium▲	TB	IA	90	80			103
Shawnee Municipal Hospital▲	Gen	City	75	27	24	334	1,514
Stillwater, 10,097—Payne							
Agricultural and Mechanical College Infirmary	Inst	State	70	8			1,439
Stillwater Municipal Hosp ▲	Gen	City	40	42	20	849	2,599
Sulphur, 7,070—Murray							
Oklahoma State Veterans Hospital▲	GenTb	State	175	156		*	808
Taft, 772—Muskogee							
Taft State Hospital	Ment	State	800	811			208
Tahlequah, 3,027—Cherokee							
Tahlequah City Hospital	Gen	City	35	18	11	275	1,200
Wm W Hastings Hospital▲	Gen	IA	72	85	13	283	1,069
Talihina, 1,057—Le Flore							
Eastern Oklahoma State Tuberculosis Sanatorium	TB	State	300	246			432
Talihina Indian Hospital▲	GenTb	IA	237	148	20	257	1,427
Tulsa, 142 157—Tulsa							
Hillcrest Memorial Hospital★+▲○	Gen	NPAssn	258	218	45	1,512	11,263
Moton Memorial Hospital	Gen	NPAssn	42	26	10	322	947
St John's Hospital★+▲○	Gen	Church	425	352	85	2 757	16 061
Vinita, 6,685—Craig							
Eastern State Hospital	Ment	State	2,500	2,807			450
Vinita Hospital	Gen	Corp	18	10	6	265	885
Waurika, 2,458—Jefferson							
Waurika Hospital	Gen	Part	24	9	4	106	616
Woodward 5 406—Woodward							
Memorial Hospital	Gen	Corp	31	18	5	291	1,491

Related Institutions

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Chickasha, 14,111—Grady							
Women's and Children's Hospital and Clinic	Gen	Indiv	10	4	5	80	670
Enid, 28,081—Garfield							
Enid State School	MeDe	State	1,265	1,270			128
Oklahoma City, 204,424—Oklahoma							
Deaconess Hospital	Gen	Church	25	9	26	269	414
Evergreen Sanatorium	TB	Indiv	30	24			111
Tahlequah, 3,027—Cherokee							
Sequoyah Vocational School Hospital	Inst	IA	19	4			243
Tulsa, 142,157—Tulsa							
Junior League Children's Convalescent Hospital	Orth	NPAssn	38	25			148
Salvation Army Home and Hospital	Mat	Church	25	1	15	38	40
Wynnewood, 2,318—Garvin							
Wynnewood Hospital Clinic	Gen	Part	12	10	6	291	1,065

OREGON

Hospitals and Sanatoriums

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Albany, 6,054—Linn							
Albany General Hospital	Gen	NPAssn	53	30	16	411	1,096
Ashland, 4,744—Jackson							
General Hospital	Gen	Part	28	12	9	141	521
Astoria, 10,389—Clatsop							
Columbia Hospital▲	Gen	Church	75	45	15	284	2,713
St Mary's Hospital▲	Gen	Church	85	38	10	295	2,094
Baker, 9,342—Baker							
St Elizabeth Hospital▲○	Gen	Church	70	58	13	365	2,073
Bend, 10,021—Deschutes							
St Charles Hospital	Gen	Church	60	42	15	574	2,783
Burns, 2 566—Harney							
Valley View Hospital	Gen	Part	18	14	6	125	510
Coos Bay, 5 259—Coos							
McAuley Hospital	Gen	Church	50	41	10	341	2,534
Corvallis 8,392—Benton							
Good Samaritan Hospital▲	Gen	Church	60	39	28	819	2,501
Oregon State College Student Health Service	Inst	State	80	9			718
Dallas, 3,579—Polk							
Dallas Hospital	Gen	Corp	30	16	10	195	724
Eugene, 20 838—Lane							
Eugene Hospital and Clinic▲	Gen	Part	34	30			2,049
Sacred Heart General Hospital▲○	Gen	Church	180	179	58	2,609	8 630
Grants Pass, 6,028—Josephine							
Josephine General Hospital	Gen	County	75	61	15	573	2,792
Hillsboro, 3,747—Washington							
Jones Hospital	Gen	Part	75	51	16	532	2,734
Hood River, 3,280—Hood River							
Hood River Hospital	Gen	NPAssn	46	35	12	373	2,063
Klamath Falls, 16 497—Klamath							
Hillside Hospital▲	Gen	Corp	32	33			1 408
Klamath Valley Hospital	Gen	Corp	87	41	40	1,300	2,978
La Grande, 7,747—Union							
Grande Ronde Hospital	Gen	NPAssn	65	31	12	183	1,249
St Joseph Hospital▲	Gen	Church	60	40	13	237	1,844
Lakeview, 2,466—Lake							
Lakeview Hospital	Gen	Corp	20	8	6	214	702
Lebanon, 2,729—Linn							
Lebanon Community Hosp	Gen	Church	31	22	7	641	1,850
McMinnville, 3,706—Yamhill							
General Hospital	Gen	Corp	49	27	18	386	1,414
McMinnville Hospital	Gen	Corp	46	43	18	291	1,715
Medford, 11,281—Jackson							
Medford Hospital▲	Gen	NPAssn	52	36	12	444	2,694
Sacred Heart Hospital▲	Gen	Church	73	51	12	475	2,937
Milwaukie, 1,871—Clackamas							
Matson Memorial Hospital for Diseases of the Chest	TB	NPAssn	45	38			205

Key to symbols and abbreviations is on page 38

OREGON—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Myrtle Point 1 296—Coos							
Mast Hospital	Gen	Indiv	41	21	8	300	2,204
Newberg 2,960—Yamhill							
Willamette Hospital	Gen	NPAssn	22	10	8	196	702
North Bend 4 262—Coos							
Kelzer Brothers Hospital	Gen	Corp	45	37	10	387	2 055
Ontario 3 551—Malheur							
Holy Rosary Hospital▲	Gen	Church	72	50	17	702	2 423
Oregon City 6 124—Clackamas							
Hutchinson General Hospital	Gen	Part	34	19	8	231	824
Oregon City Hospital▲	Gen	Corp	64	46	16	622	2,303
Pendleton 8,847—Umatilla							
Eastern Oregon State Hospital▲	Ment	State	1,510	1 362			415
St Anthony s Hospital▲○	Gen	Church	115	89	25	638	4 899
Portland 305 394—Multnomah							
Doernbecher Memorial Hospital for Children○	Unit of University of Oregon Medical School Hospitals and Clinics						
Emanuel Hospital★+▲○	Gen	Church	350	322	106	4,294	13,667
Good Samaritan Hosp ★+▲○	Gen	Church	430	336	75	2 260	14 044
Holladay Park Hospital▲	Gen	NPAssn	75	60	11	298	3,007
Juvenile Hospital for Girls	Ven	NPAssn	35	35			47
Morningside Hospital	N&M	Corp	400	337			94
Multnomah Hospital	Unit of University of Oregon Medical School Hospitals and Clinics						
Permanente Hospital	Unit of Northern Permanente Hospital Vancouver Wash.						
Physicians and Surgeons Hospital▲	Gen	NPAssn	123	98			4,853
Portland Sanitarium and Hospital★▲○	Gen	Church	144	125	42	1,961	6 602
Providence Hospital★+▲○	Gen	Church	239	196			7,908
St Vincent s Hospital★+▲○	Gen	Church	376	289	68	2 221	10,909
Salvation Army White Shield Home	Mat	Church	21	4	12	116	180
Shriners Hospital for Crippled Children+▲	Orth	NPAssn	60	60			392
Theo B Wilcox Memorial Hospital	Unit of Good Samaritan Hospital						
University of Oregon Medical School Hospitals and Clinics★+▲○	GenTb	CoState	418	377	30	731	7,202
University State Tuberculosis Hospital○	Unit of University of Oregon Medical School Hospitals and Clinics						
Veterans Admin Hospital+▲	Gen	Vet	510	458			6,364
Prairie City 647—Grant							
Blue Mountain General Hosp	Gen	City	30	15	6	183	900
Prineville 2 358—Crook							
Prineville General Hospital	Gen	Indiv	27	6	7	251	895
Roseburg 4 924—Douglas							
Mercy Hospital	Gen	Church	50	44	15	877	8,757
Veterans Admin Hospital▲	Ment	Vet	670	594			404
St Helens 4 304—Columbia							
St Helens Hospital	Gen	Part	10	4	8	177	737
Salem 30 908—Marion							
Oregon State Hospital+▲○	Ment	State	3 000	2 751			1 164
Oregon State Tuberculosis Hospital▲	TB	State	240	191			202
Salem General Hospital▲	Gen	NPAssn	80	75	18	1,302	4 790
Salem Memorial Hospital▲	Gen	NPAssn	91	72	24	786	3,597
Seaside 2 902—Clatsop							
Seaside Hospital	Gen	City	30	14	10	123	868
Silverton 2,925—Marion							
Silverton General Hospital	Gen	NPAssn	37	24	12	312	1,362
Sweet Home 1 090—Linn							
Langmack Hospital	Gen	Corp	30	15	12	213	1,231
The Dalles 6,266—Wasco							
Eastern Oregon State Tuberculosis Hospital	TB	State	185	133			146
Mid-Columbia Hospital	Gen	Indiv	22	14	6	83	763
The Dalles General Hosp ▲○	Gen	NPAssn	75	54	20	398	2 415
Tillamook 2 751—Tillamook							
Tillamook General Hospital	Gen	County	58	42	10	405	2,210
Toledo 2,288—Lincoln							
Lincoln Hospital	Gen	Corp	25	19	5	322	1 078
Troutdale 211—Multnomah							
Multnomah County Tuberculosis Pavilion	TB	County	36	23			88
Warm Springs 150—Jefferson							
Warm Springs Hospital	Gen	IA	21	9	6	36	369
Wheeler 259—Tillamook							
Wheeler Hospital	Surg	NPAssn	10			Estab	1949
Related Institutions							
Enterprise 1 709—Wallowa							
Wallowa Memorial Hospital	Gen	*County*	30	12	8	150	868
Portland 305,394—Multnomah							
City Isolation Hospital	IsoVen	City	115	19	4	2	922
Raleigh Hills Sanitarium	Alcoh	Corp	18	13			206
Retreat Hospital	Drug	Indiv	6	2			115
Salem 30 908—Marion							
Oregon Fairview Home	MeDe	State	1 250	1,208			218
Oregon State Penitentiary Hospital --	Inst	State	30	20			394
Woodburn 1 982—Marion							
Woodburn Hospital	Gen	Indiv	8	4	6	123	375

PENNSYLVANIA

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Abington 8,200—Montgomery							
Abington Memorial Hospital★+▲○	Gen	NPAssn	304	217	55	1 566	8,535
Allentown 96,904—Lehigh							
Allentown Hospital★+▲○	Gen	NPAssn	362	364	35	1,958	12 055
Allentown State Hospital+▲○	Ment	State	1,909	2 018			51
Sacred Heart Hospital★+▲○	GenTb	Church	370	322	54	1 578	8,160
Allenwood 400—Union							
Devitt s Camp	TB	NPAssn	104	101			218
Altoona 80 214—Blair							
Altoona Hospital★▲○	Gen	NPAssn	220	167	46	1,719	6,233
Mercy Hospital▲○	Gen	NPAssn	165	164	57	1,568	5,377
Ambler 3 953—Montgomery							
Dufur Hospital	N&M	NPAssn	106	87			393
Ashland 7 045—Schuylkill							
Ashland State Hospital▲○	Gen	State	173	129	20	710	3,898
Aspinwall 4 716—Allegheny							
Veterans Admin Hospital+▲	Gen	Vet	943	867			9 125
Beaver Falls 17 098—Beaver							
Providence Hospital▲○	Gen	NPAssn	98	85	30	827	3 567
Bedford 3,268—Bedford							
Timmins Hospital	Gen	Indiv	17	12	5	101	734
Bellefonte, 5,304—Centre							
Centre County Hospital▲	Gen	NPAssn	67	51	22	951	2,554
Bellevue (Pittsburgh P O), 10 488—Allegheny							
Suburban General Hospital▲	Gen	NPAssn	127	101	24	676	4 070
Berwick 13 181—Columbia							
Berwick Hospital	Gen	NPAssn	62	33	13	514	1,903
Bethlehem 58 490—Northampton							
Doctors Hospital	Gen	Part	20	8	10	50	887
St Luke s Hospital★+▲○	Gen	NPAssn	351	267	47	1 860	10 469
Bloomsburg 9 799—Columbia							
Bloomsburg Hospital▲	Gen	NPAssn	96	63	16	531	2 600
Blossburg 1,955—Tioga							
Blossburg State Hospital▲	Gen	State	90	82	9	243	2,187
Braddock 18 326—Allegheny							
Braddock General Hosp ▲○	Gen	NPAssn	133	128	42	1 460	4 706
Bradford 17 091—McKean							
Bradford Hospital+▲○	Gen	NPAssn	121	103	30	730	4 307
Brookville 4,397—Jefferson							
Brookville Hospital	Gen	NPAssn	36	39	10	557	1 955
Brownsville 8 015—Fayette							
Brownsville General Hosp ▲○	Gen	NPAssn	89	63	17	846	4 276
Bryn Mawr 10 206—Montgomery							
Bryn Mawr Hospital★+▲○	Gen	NPAssn	285	228	48	1,509	8 199
Butler 24,477—Butler							
Butler County Memorial Hospital▲○	Gen	NPAssn	166	145	36	1 421	5,818
Veterans Admin Hospital▲	Gen	Vet	920	805			3 494
Canonsburg 12,599—Washington							
Canonsburg General Hosp ▲○	Gen	NPAssn	84	68	32	800	3 041
Carbondale 19 371—*Lackawanna*							
Carbondale General Hosp ▲	Gen	NPAssn	69	44	18	358	1 780
St Joseph s Hospital▲○	Gen	Church	88	68	10	369	2,296
Carlisle 13,984—Cumberland							
Carlisle Hospital▲	Gen	NPAssn	94	97	30	879	3 507
Station Hospital▲	Gen	Army	100	24	6	229	1 494
Chambersburg 14 852—Franklin							
Chambersburg *Hospital*▲	*Gen*	NPAssn	83	78	*16*	803	3,944
Charleroi 10 784—Washington							
Charleroi Monessen Hosp.▲	Gen	NPAssn	152	132	53	1,296	[illegible]
Chester 59,285—Delaware							
Chester Hospital★▲○	Gen	NPAssn	235	170	52	1,534	7 182
J Lewis Crozer Homeopathic Hospital▲	GenIncur	NPAssn	100	89	35	840	4 545
Clarks Summit 2 691—Lackawanna							
Clarks Summit State Hosp ▲	Ment	State	1 385	1,300			330
Clearfield 9 372—Clearfield							
Clearfield Hospital▲○	Gen	NPAssn	107	75	22	575	3 751
Coaldale 6,163—Schuylkill							
Coaldale State Hospital▲	Gen	State	120	87	18	646	3 188
Coatesville 14 006—Chester							
Clement Atkinson Memorial Hospital	Gen	NPAssn	17	10	3	49	252
Coatesville Hospital▲○	Gen	NPAssn	107	89	25	701	3 891
Veterans Admin Hospital+▲○	Ment	Vet	2 119	1 944			493
Columbia, 11,547—Lancaster							
Columbia Hospital	Gen	NPAssn	48	29	14	468	1 483
Confluence 1 035—Somerset							
Price Hospital	Gen	Indiv	14	7	8	111	370
Connellsville 13 6[illegible]—Fayette							
Connellsville State Hosp ▲	Gen	State	111	81	33	927	3 [illegible]66
Corry 6 935—Erie							
Corry Memorial Hospital	Gen	NPAssn	40	[illegible]	8	419	2 065
Coudersport 3 197—Potter							
Potter County Memorial Hospital	Gen	NPAssn	46	33	10	221	607
Cresson 2,500—Cambria							
Pennsylvania State Tuberculosis Sanatorium No 2▲	TB	State	784	663			479
Danville 7 122—Montour							
Danville State Hospital+▲○	Ment	State	2,554	2 409			4[illegible]6
George F Geisinger Memorial Hospital★+▲○	Gen	NPAssn	205	176	36	992	[illegible]
Darby 10 334—Delaware							
Fitzgerald Mercy Hosp ★+▲○	Gen	Church	200	172	64	[illegible]	[illegible]
Dixmont 188—Allegheny							
Dixmont State Hospital	Ment	State	[illegible]	[illegible]			40
Drexel Hill —Delaware							
Delaware County Hospital▲	Gen	NPAssn	[illegible]	59	16	[illegible]	[illegible]
Dubois 12,080—Clearfield							
Dubois Hospital	Gen	Church	[illegible]	[illegible]	14	[illegible]	2,525
Maple Avenue Hospital	Gen	NPAssn	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Key to symbols and abbreviations is on page 38

PENNSYLVANIA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Eagleville, 500—Montgomery							
Eagleville Sanatorium for Consumptives+▲	TB	NPAssn	190	184			175
Easton, 33,589—Northampton							
Betts Hospital	Gen	NPAssn	50	40	22	310	1,186
Easton Hospital*+▲○	Gen	NPAssn	177	138	33	1,274	6,142
East Stroudsburg, 6,401—Monroe							
General Hospital of Monroe County▲	Gen	NPAssn	65	55	18	580	1,859
Elizabethtown, 4,315—Lancaster							
Philadelphia Freemasons' Memorial Hospital Masonic Homes	Inst	NPAssn	165	170			575
State Hospital for Crippled Children+▲	Orth	State	225	106			161
Ellwood City, 12,329—Lawrence							
Ellwood City Hospital▲	Gen	NPAssn	83	55	16	783	2,367
Elwyn, 200—Delaware							
Elwyn Training School	MeDe	NPAssn	1,055	1,088			59
Ephrata, 6,199—Lancaster							
Ephrata Community Hosp	Gen	NPAssn	60		22	Estab	1949
Erie, 116,955—Erie							
Erie County Tuberculosis Hospital	TB	County	65	60			99
Hamot Hospital*+▲○	Gen	NPAssn	289	232	43	1,735	9,585
St Vincent's Hospital*+▲○	Gen	NPAssn	290	221	71	2,801	10,915
Zem Zem Hospital for Crippled Children	Orth	NPAssn	48	37			105
Everett, 2,425—Bedford							
Everett Hospital▲	Gen	NPAssn	35	21	8	145	720
Franklin, 9,948—Venango							
Franklin Hospital	Gen	NPAssn	81	54	18	537	2,809
Gettysburg, 5,916—Adams							
Annie M Warner Hospital▲	Gen	NPAssn	74	56	19	713	2,427
Gladwyne, 1,236—Montgomery							
Gladwyne Colony	N&M	Indiv	90	88			117
Greensburg, 16,743—Westmoreland							
Westmoreland Hospital*+▲○	Gen	NPAssn	190	156	40	1,814	7,232
Greenville, 8,149—Mercer							
Greenville Hospital▲	Gen	NPAssn	64	51	22	435	2,707
Grove City, 6,296—Mercer							
Grove City Hospital	Gen	NPAssn	31	27	15	464	1,450
Hamburg, 3,717—Berks							
Pennsylvania State Sanatorium for Tuberculosis No 3+▲	TB	State	465	452			373
Hanover, 13,076—York							
Hanover General Hospital▲	Gen	NPAssn	80	73	18	1,002	3,126
Harrisburg, 83,893—Dauphin							
Harrisburg Hospital*+▲○	Gen	NPAssn	312	337	56	2,125	9,584
Harrisburg Polyclinic Hospital*+▲○	Gen	NPAssn	258	241	49	1,719	8,115
Harrisburg State Hospital+▲	Ment	State	2,444	2,450			440
Keystone Hospital	Gen	Indiv	32	32	12	295	900
Hazleton, 38,009—Luzerne							
Hazleton State Hospital+▲○	Gen	State	180	164	30		6,137
St Joseph Hospital	Gen	Church	250	New building			
Hollidaysburg, 5,910—Blair							
Hollidaysburg State Hosp	Ment	State	364	360			96
Homestead, 19,041—Allegheny							
Homestead Hospital▲○	Gen	NPAssn	124	96	20	748	4,084
Honesdale, 5,687—Wayne							
Wayne County Memorial Hospital	Gen	NPAssn	35	31	8	225	1,249
Huntingdon, 7,170—Huntingdon							
J C Blair Memorial Hosp▲	Gen	NPAssn	72	70	14	676	3,572
Indiana, 10,050—Indiana							
Indiana Hospital▲○	Gen	NPAssn	166	144	34	1,084	6,436
Jersey Shore, 5,432—Lycoming							
Jersey Shore Hospital	Gen	NPAssn	32	22	10	266	1,088
Johnstown, 66,668—Cambria							
Conemaugh Valley Memorial Hospital*▲○	Gen	NPAssn	346	276	69	1,726	12,970
Lee Hospital▲	Gen	NPAssn	76	56	20	538	2,355
Mercy Hospital▲○	Gen	Church	116	101	28	1,227	4,257
Kane, 6,133—McKean							
Community Hospital▲	Gen	NPAssn	61	38	18	262	1,079
Kane Summit Hospital	Gen	NPAssn	23	19	6	188	728
Kingston, 20,679—Luzerne							
Nesbitt Memorial Hosp*▲○	Gen	NPAssn	200	140	40	1,255	6,456
Kittanning, 7,550—Armstrong							
Armstrong County Hospital	Gen	NPAssn	73	52	20	880	2,637
Lancaster, 61,345—Lancaster							
Lancaster General Hospital*+▲○	Gen	NPAssn	248	230	78	2,437	9,255
Rossmere Sanatorium	TB	CyCo	56	52			72
St Joseph's Hospital*+▲○	Gen	Church	232	192	41	943	6,815
Lansdale, 9,316—Montgomery							
Elm Terrace Hospital	Gen	NPAssn	39	20	14	268	1,009
Latrobe, 11,111—Westmoreland							
Latrobe Hospital▲○	Gen	NPAssn	173	113	45	1,138	4,930
Laurelton, 327—Union							
Laurelton State Village	MeDe	State	1,017	924			90
Lebanon, 27,206—Lebanon							
Good Samaritan Hospital▲	Gen	NPAssn	120	76	30	884	3,380
Lebanon Sanatorium	Gen	NPAssn	40	31	16	586	1,655
Veterans Admin Hospital▲	Ment	Vet	501	418			2,193
Leetsdale, 2,132—Allegheny							
D T Watson Home for Crippled Children▲	Orth	NPAssn	100	94			146
Lewisburg, 3,571—Union							
Evangelical Hospital	Gen	Church	47	48	22	704	1,872
U S Penitentiary Hosp▲	Inst	USPHS	64	20			600

PENNSYLVANIA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Lewistown, 13,017—Mifflin							
Lewistown Hospital▲○	Gen	NPAssn	114	106	21	800	3,577
Limeport, 250—Lehigh							
Sacred Heart Sanatorium	Unit of Sacred Heart Hospital, Allentown						
Lock Haven, 10,810—Clinton							
Lock Haven Hospital▲○	Gen	NPAssn	97	62	19	669	2,038
Teah Private Hospital	Gen	Indiv	81	21	5	163	1,045
Mayview, 420—Allegheny							
Mayview State Hospital○	Ment	State	3,158	3,090			838
Allegheny County Institution District Hospital	Unit of Allegheny County Institution District Hospital, Woodville						
McKeesport, 55,355—Allegheny							
McKeesport Hospital*▲○	Gen	NPAssn	275	230	50	2,026	8,785
McKees Rocks, 17,021—Allegheny							
Ohio Valley General Hosp▲○	Gen	NPAssn	125	48	35	499	2,323
Meadville, 18,919—Crawford							
Meadville City Hospital▲○	Gen	NPAssn	122	114	28	837	4,588
Spencer Hospital▲○	Gen	NPAssn	116	82	22	531	3,944
Mechanicsburg, 5,709—Cumberland							
Seidle Memorial Hospital	Gen	NPAssn	88	27	22	615	838
Mercer, 2,272—Mercer							
Mercer Cottage Hospital	Gen	Corp	49	33	4	115	1,332
Mercer Sanitarium	N&M	Part	42	34			184
Meshoppen, 580—Wyoming							
Tyler Memorial Hospital	Gen	NPAssn	20	17	10	280	958
Meyersdale, 3,250—Somerset							
Hazel McGilvery Hospital	Gen	NPAssn	16	11	8	244	831
Monaca, 7,061—Beaver							
Beaver County Sanatorium▲	TB	County	62	56			63
Monessen, 20,257—Westmoreland							
Gemmill Hospital	ENT	Part	16	10			937
Monongahela, 8,825—Washington							
Memorial Hospital▲	Gen	NPAssn	74	60	25	800	3,174
Mount Pleasant, 5,824—Westmoreland							
Henry Clay Frick Memorial Hospital▲	Gen	NPAssn	71	61	27	917	3,912
Muncy, 2,600—Lycoming							
Muncy Valley Hospital	Gen	NPAssn	20	20	12	252	748
Nanticoke, 24,387—Luzerne							
Nanticoke State Hospital▲	Gen	State	100	96	20	590	3,261
New Brighton, 9,630—Beaver							
Beaver Valley General Hospital▲○	Gen	NPAssn	80	63	18	588	3,009
New Castle, 47,638—Lawrence							
Jameson Memorial Hosp▲○	Gen	NPAssn	166	136	36	1,360	6,361
New Castle Hospital▲○	Gen	Church	113	90	22	605	4,160
New Cumberland, 4,525—Cumberland							
Station Hospital	Gen	Army	50	18			800
New Kensington, 24,055—Westmoreland							
Citizens General Hosp▲○	Gen	NPAssn	147	160	38	1,500	7,080
New Wilmington, 1,018—Lawrence							
Overlook Sanitarium	N&M	Part	35	25			204
Norristown, 38,181—Montgomery							
Montgomery Hospital*▲○	Gen	NPAssn	193	136	47	1,143	6,223
Norristown State Hosp+▲○	Ment	State	4,400	4,376			777
Sacred Heart Hosp▲	Gen	Church	105	73	30	564	3,412
Oakbourne (West Chester P O), 100—Chester							
Oakbourne Colony Hospital	Epil	NPAssn	125	97			23
Oil City, 20,379—Venango							
Oil City Hospital▲○	Gen	NPAssn	155	102	20	535	4,452
Palmerton, 7,475—Carbon							
Palmerton Hospital▲	Gen	NPAssn	65	48	11	458	2,877
Peckville, 8,106—Lackawanna							
Mid Valley Hospital	Gen	NPAssn	65	33	14	367	1,479
Philadelphia, 1,931,334—Philadelphia							
All Saints Hospital for Treatment of Tuberculosis	TB	Church	70	62			100
American Hospital for Diseases of the Stomach	Gen	NPAssn	85	25	5	69	510
American Oncologic Hosp+▲	SkCa	NPAssn	55	35			1,706
Anderson Hospital	Gen	NPAssn	90	38	24	522	3,599
Chestnut Hill Hospital▲○	Gen	NPAssn	104	73	36	699	3,818
Children's Heart Hosp▲	Card	NPAssn	60	59			145
Children's Hospital+▲○	Chil	NPAssn	142	110			4,417
Children's Hospital of the Mary J Drexel Home+▲	Chil	Church	45	23			1,273
Columbus Hospital	Gen	Church	60	30	18	242	1,050
Community Hospital▲	Gen	NPAssn	41	27	18	216	905
Doctors Hospital*+	Gen	NPAssn	175	97	40	933	4,146
Eastern State Penitentiary Hospital	Inst	State	50	21			381
Episcopal Hospital*+▲○	Gen	NPAssn	495	312	55	1,862	9,040
Fairmount Farm	N&M	Corp	82	54			519
Frankford Hospital*+▲○	Gen	NPAssn	142	117	56	1,755	5,051
Friends Hospital+▲○	N&M	NPAssn	195	167			368
Garretson Hospital	Unit of Temple University Hospital						
Germantown Dispensary and Hospital*+▲○	Gen	NPAssn	310	206	60	1,895	8,818
Graduate Hospital of the University of Pennsylvania*+▲	Gen	NPAssn	364	264			8,322
Hahnemann Hospital*+▲○	Gen	NPAssn	605	424	91	2,394	14,037
Hall Mercer Hospital	Associated with Institute of the Pennsylvania Hospital, Philadelphia						
Hospital of the University of Pennsylvania*+▲○	Gen	NPAssn	613	572	64	1,847	20,337
Hospital of the Woman's Medical College of Pennsylvania*+▲○	Gen	NPAssn	171	131	38	1,099	4,854
Institute of the Pennsylvania Hospital+▲	N&M	NPAssn	86	59			334
Jeanes Hospital+▲	Cancer	NPAssn	80	46			1,4[illegible]

Key to symbols and abbreviations is on page 38

PENNSYLVANIA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Jefferson Medical College Hospital★+▲○	GenTb	NPAssn	722	640	53	2 515	21 141
Jewish Hospital★+▲○	Gen	NPAssn	467	312	64	1 471	10,150
Joseph Price Memorial Hospital▲	Gen	NPAssn	65	33	10	91	509
Kensington Hospital	Gen	NPAssn	65	34	18	467	1 757
Lankenau Hospital★+▲○	Gen	NPAssn	260	184	34	778	6,211
Lying In Hospital	Unit of Pennsylvania Hospital						
Memorial Hospital★▲○	Gen	NPAssn	117	82	20	676	3 510
Mercy Douglass Hosp ★+▲○	Gen	NPAssn	100	83	29	666	3 161
Methodist Episcopal Hospital★▲○	Gen	Church	202	130	31	837	4 493
Misericordia Hospital★+▲○	Gen	Church	220	183	50	1 755	7,319
Mount Sinai Hosp ★+▲○	Gen	NPAssn	259	193	55	1,241	6 776
Nazareth Hospital★+▲	Gen	Church	150	135	45	2,191	6 468
Northeastern Hospital▲○	Gen	NPAssn	82	59	20	514	2 495
Northern Liberties Hosp ▲	Gen	NPAssn	58	47	11	215	1,880
Northwestern General Hosp	Unit of Temple University Hospital						
Pennsylvania Hospital★+▲○	Gen	NPAssn	433	308	80	2 878	10,894
Pennsylvania Hospital Department for Mental and Nervous Diseases+▲○	N&M	NPAssn	220	180			452
Philadelphia General Hospital★+▲○	Gen	City	2 500	1 872	60	3 019	20,39
Philadelphia Hospital for Contagious Diseases+▲○	IsoTb	City	700	270			2,272
Philadelphia Psychiatric Hospital+▲	N&M	NPAssn	64	56			460
Philadelphia State Hosp ▲⊙	Ment	State	6 183	6 020			577
Physicians and Surgeons Hospital	Gen	NPAssn	50	13	12	132	1 187
Presbyterian Hosp ★+▲○	Gen	Church	340	225	42	735	9 657
Preston Maternity Hosp ▲	Mat	NPAssn	50	10	35	334	448
Rush Hospital for Consumption and Allied Diseases▲	TB	NPAssn	108	128			359
St Agnes Hospital▲○	Gen	Church	300	177	60	1 426	7 303
St. Christopher s Hospital for Children▲○	Chil	NPAssn	90	58			2 618
St Joseph s Hospital★+▲○	Gen	Church	200	134	35	901	4 821
St Luke s and Children s Medical Center★+▲	Gen	NPAssn	285	176	83	1 081	7 663
St Mary s Hospital★+▲	Gen	Church	230	146	50	1 442	5 816
St Vincent s Hospital for Women and Children▲	Gen	Church	116	69	24	808	1,337
Shriners Hospital for Crippled Children+▲	Orth	NPAssn	120	78			219
Skin and Cancer Hosp +	SkCa	NPAssn	31	18			408
Stetson Hospital▲	Gen	NPAssn	64	31	15	382	1 957
Temple University Hospital★+▲○	Gen	NPAssn	558	452	44	2,182	16 466
U S Naval Hosp ★+▲	Gen	Navy	1 450	998	96	723	14 822
Urologic Clinic Hospital	Urol	Part	15	7			493
Wills Hospital+▲	Eye	NPAssn	200	138			4 050
Wolffe Clinic and Hospital	Gen	Indiv	28	25			472
Woman s Hospital★+▲○	Gen	NPAssn	137	91	48	1,372	5 284
Women s Homoeopathic Hospital★+▲	Gen	NPAssn	179	98	59	795	4,590
Philipsburg 3,963—Centre							
Benson Sanatorium	Gen	Indiv	25	19	12	280	746
Philipsburg State Hosp ▲○	Gen	State	138	127	18	724	4 271
Phoenixville 12,282—Chester							
Phoenixville Hospital▲	Gen	NPAssn	84	59	23	502	2,800
Valley Forge General Hosp ▲	Gen	Army	1 640	1 467	22	81	6 713
Pittsburgh 671 659—Allegheny							
Allegheny General Hospital★+▲○	Gen	NPAssn	554	444	81	2 084	12 183
Belvedere General Hospital	Gen	NPAssn	23	15	10	122	684
Children s Hospital+▲○	Chil	NPAssn	208	170			5,559
City Tuberculosis Hosp ▲	TB	City	430	393	12	5	531
Elizabeth Steel Magee Hospital+▲○	Gen	NPAssn	350	259	204	4 374	9 341
Eye Ear Nose and Throat Hospital+▲○	ENT	NPAssn	106	87	6		6 105
Fairview Sanatorium	N&M	Corp	15	12			35
Haddon Maternity Hosp	Mat	Corp	25	17	14	164	164
Mercy Hospital★+▲○	Gen	Church	667	594	66	2 941	14,867
Montefiore Hospital★+▲○	Gen	NPAssn	247	214	32	1 279	8 749
Municipal Hospital▲⊙	Iso	City	120	42			1 342
Passavant Hospital▲	Gen	NPAssn	92	61	20	338	2,023
Pittsburgh Hospital★+▲○	Gen	NPAssn	225	192	35	1 278	6 476
Presbyterian Hospital★+▲○	Gen	NPAssn	235	205			5,318
Rosalia Foundling and Maternity Hospital▲	MatChil	NPAssn	132	126	23	497	943
St. Francis Hospital★+▲○	Gen	NPAssn	690	627	51	1,846	13 025
St. John s General Hosp ★▲○	Gen	NPAssn	197	175	53	1 908	7 144
St Joseph s Hospital and Dispensary★▲○	Gen	Church	170	150	30	1 147	4,660
St Margaret Memorial Hospital★+▲○	Gen	Church	122	99	21	531	3 687
Shadyside Hospital★▲○	Gen	NPAssn	301	252	40	1 419	8 697
South Side Hospital★+▲○	Gen	NPAssn	207	148	25	929	6 763
Tuberculosis League Hospital+▲○	TB	NPAssn	150	139			224
U S Marine Hospital▲	Gen	USPHS	60	57			1,876
Western Pennsylvania Hospital★+▲○	Gen	NPAssn	549	441	70	1 763	13 816
Western State Penitentiary Hospital	Inst	State	39	24			569
Western Psychiatric Institute and Clinic+▲⊙	Ment	NPAssn	166	130			206
Woman s Hospital▲	Gen	NPAssn	115	95			2 878

PENNSYLVANIA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Pittston 17 828—Luzerne							
Pittston Hospital▲○	Gen	NPAssn	122	84	23	809	3 853
Polk 3 690—Venango							
Polk State School	MeDe	State	3 475	3 172			219
Port Allegany 2 350—McKean							
Port Allegany Community Hospital	Gen	NPAssn	17	8	8	141	547
Pottstown 20 194—Montgomery							
Hill School Infirmary	Inst	NPAssn	40	2			254
Memorial Hospital▲	Gen	NPAssn	72	51	20	[illegible]	2 526
Pottstown Hospital+▲○	Gen	NPAssn	100	65	26	683	3 075
Pottsville 24 530—Schuylkill							
A C Milliken Hospital▲	Gen	NPAssn	145	81	35	[illegible]	4 144
Lemos B Warne Hospital and Clinic▲	Gen	NPAssn	75	32	17	243	1 596
Pottsville Hospital▲○	Gen	NPAssn	155	126	17	734	3 941
Punxsutawney 9 482—Jefferson							
Adrian Hospital	Gen	NPAssn	85	59	13	570	2 479
Quakertown 5 150—Bucks							
Quakertown Community Hospital▲	Gen	NPAssn	61	30	17	334	1 850
Reading 110,568—Berks							
Berks County Tuberculosis Sanatorium▲	TB	County	143	101			100
Community General Hosp ★▲	Gen	NPAssn	123	107	27	700	4 037
Reading Hospital★+▲○	Gen	NPAssn	384	287	68	2,234	10 487
St Joseph s Hospital★+▲○	Gen	Church	201	162	35	1 190	6 156
Renovo 3 784—Clinton							
Renovo Hospital	Gen	NPAssn	24	18	6	178	1 199
Retreat 2,000—Luzerne							
Retreat State Hospital▲	Ment	State	1 175	1 093			179
Ridgway 6,253—Elk							
Elk County General Hospital	Gen	NPAssn	72	44	15	310	1,759
Ridley Park 3,887—Delaware							
Taylor Hospital	Gen	NPAssn	70	65	18	5 6	3 039
Roaring Spring 2 724—Blair							
Nason Hospital	Gen	NPAssn	63	46	15	417	1 604
Rochester 7 441—Beaver							
Rochester General Hosp ★▲	Gen	NPAssn	137	116	33	1,227	4 787
St Marys 7 653—Elk							
Andrew Kaul Memorial Hospital▲	Gen	Church	80	46	20	563	2 089
Sayre 7 500—Bradford							
Robert Packer Hospital★+▲○	Gen	NPAssn	304	240	21	806	10 451
Scranton 140 404—Lackawanna							
Hahnemann Hospital▲○	Gen	NPAssn	109	103	30	1 193	4 285
Lackawanna County Tuberculosis Hospital▲	TB	County	150	130			85
Mercy Hospital▲○	Gen	Church	105	73	35	902	2,959
Moses Taylor Hospital★▲○	Gen	NPAssn	120	98			2 487
St Joseph Children s and Maternity Hospital▲○	MatChil	Church	204	154	4	55	240
St Mary s Hospital▲○	Gen	Church	70	58	15	566	1,572
Scranton State Hospital★+▲○	Gen	State	290	231	20	990	6,232
West Side Hospital▲	Gen	NPAssn	65	52	10	331	1 659
Sellersville 2,115—Bucks							
Grand View Hospital▲○	Gen	NPAssn	75	64	24	680	2,530
Sewickley 5 614—Allegheny							
Sewickley Valley Hosp ★▲○	Gen	NPAssn	187	171	40	1 101	5 671
Shamokin, 18 810—Northumberland							
Shamokin State Hospital▲	Gen	State	89	57	26	679	2 71
Sharon 25 622—Mercer							
Christian H Buhl Hosp +▲○	Gen	NPAssn	234	190	46	[illegible]	9 033
Shenandoah 19 790—Schuylkill							
Locust Mountain State Hospital▲	Gen	State	79	70	14	611	3,366
Somerset 5 430—Somerset							
Somerset Community Hosp	Gen	NPAssn	74	64	12	509	3 144
South Mountain 200—Franklin							
Pennsylvania State Sanatorium No 1 (Mont Alto)▲	TB	State	1 380	842			551
Spangler 3,201—Cambria							
Miners Hospital of Northern Cambria▲○	Gen	Corp	83	63	15	[illegible]	3 166
Spring City 3 022—Chester							
Pennhurst State School	MeDe	State	3 000	2 540			[illegible]
State College 6,220—Centre							
Pennsylvania State College Health Service Hospital	Inst	State	30	8			[illegible]
Sunbury 15 469—Northumberland							
Sunbury Community Hosp	Gen	NPAssn	74	55	14	[illegible]	[illegible]
Susquehanna 2,740—Susquehanna							
Simon H Barnes Memorial Hospital	Gen	NPAssn	18	9	5	[illegible]	[illegible]
Tarentum 9 846—Allegheny							
Allegheny Valley Hospital▲○	Gen	NPAssn	188	179	40	[illegible]	[illegible]
Taylor 9 002—Lackawanna							
Taylor Hospital▲	Gen	NPAssn	40	35	1	392	2 053
Titusville 8 126—Crawford							
Titusville Hospital▲	Gen	NPAssn	65	40	22	416	2 459
Torrance 500—Westmoreland							
Torrance State Hospital▲⊙	Ment	State	[illegible]	2 654			[illegible]
Union City 3 843—Erie							
Henry L Stem Memorial Hospital	Gen	NPAssn	20	17	10	[illegible]	1 190
Uniontown 21 819—Fayette							
Uniontown Hospital★+▲○	Gen	NPAssn	215	242	55	[illegible]	[illegible]
Warren 14 891—Warren							
Warren General Hospital▲	Gen	NPAssn	91	75	22	[illegible]	[illegible]
Warren State Hospital+▲○	Ment	State	2 770	2,715			516

Key to symbols and abbreviations is on page 38

PENNSYLVANIA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Washington, 26,166—Washington							
Hillsview Sanitarium▲	Gen	Corp	40	40			284
Washington Hospital★+▲○	Gen	NPAssn	189	164	46	1,418	6,619
Wawa, 300—Delaware							
Wawa Chest Hospital	TB	NPAssn	25	23			66
Waymart, 1,095—Wayne							
Fairview State Hospital	Ment	State	1,250	1,219			132
Waynesboro, 10,231—Franklin							
Waynesboro Hospital	Gen	NPAssn	58	40	20	605	2,265
Waynesburg, 4,891—Greene							
Greene County Memorial Hospital▲	Gen	NPAssn	114	103	24	1,047	4,591
Wellsboro, 3,065—Tioga							
Soldiers and Sailors Memorial Hospital	Gen	NPAssn	44	33	16	484	1,802
Wernersville, 1,160—Berks							
Wernersville State Hosp▲	Ment	State	1,600	1,882			451
West Chester, 13,289—Chester							
Chester County Hosp★+▲○	Gen	NPAssn	153	140	27	851	4,454
Darlington Sanitarium	N&M	NPAssn	70	36			101
Marshall Square Sanitarium	N&M	Indiv	120	100			257
Memorial Hospital of Chester County▲	Gen	NPAssn	66	41	14	289	1,706
White Haven, 1,528—Luzerne							
White Haven Sanatorium+▲	Unit of Jefferson Medical College Hospital, Philadelphia						
Whitemarsh, 300—Montgomery							
Eugenia Memorial Hospital	N&M	Indiv	30	11			155
Wilkes Barre, 86,236—Luzerne							
Mercy Hospital★+▲○	Gen	Church	189	173	50	940	5,801
Wilkes Barre General Hospital★+▲○	Gen	NPAssn	302	251	64	1,562	6,648
Wyoming Valley Homeopathic Hospital▲○	Gen	NPAssn	89	57	20	629	2,506
Wilkinsburg, 29,853—Allegheny							
Columbia Hospital★+▲○	Gen	Church	171	150	61	1,489	6,020
Williamsport, 44,355—Lycoming							
Rothfuss Clinic and Hospital	Gen	Indiv	25	8	12	223	708
Williamsport Hospital★+▲○	Gen	NPAssn	260	218	44	1,510	8,731
Windber, 9,057—Somerset							
Windber Hospital▲○	Gen	NPAssn	107	90	10	468	2,042
Woodville, 4,000—Allegheny							
Allegheny County Institution District Hospital▲	InstGen	County	1,735	1,705			1,265
Woodville State Hospital+▲	Ment	State	1,877	2,525			442
York, 56,712—York							
York Hospital★+▲○	Gen	NPAssn	227	177	52	2,131	10,175

Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Bellefonte, 3,901—Centre							
Western State Penitentiary Hospital	Inst	State	21	4			245
Broomall, 1,200—Delaware							
Convalescent Hospital	ConvOrth	NPAssn	25	20			284
Rest Haven for Convalescents	Conv	Part	87	85			250
Bryn Mawr, 10,200—Montgomery							
Bryn Mawr College Infirmary	Inst	NPAssn	21	6			614
Cambridge Springs, 1,807—Crawford							
San Rosario Sanitarium	Conv	Church	34	14			505
Camp Hill, 3,630—Cumberland							
Pennsylvania Industrial School	Inst	State	30	30			433
Chambersburg, 14,852—Franklin							
Chambersburg Maternity Home	Mat	Part	9	3	12	320	325
Darby, 10,334—Delaware							
St Francis Country House	Conv	Church	60	52			265
Doylestown, 4,976—Bucks							
Dr Buckman's Hospital	Conv	Indiv	25	No data supplied			
Ebensburg, 3,719—Cambria							
Cambria County Hospital	Inst	County	220	205			208
Embreeville, 500—Chester							
Embreeville State Hospital	Ment	State	350	325			34
Erie, 116,955—Erie							
Erie Infants' Home and Hospital	Chil	NPAssn	50	40			90
Lakeview Hospital	Iso	City	85	No data supplied			
Harmarville, 900—Allegheny							
Harmarville Convalescent Home	Conv	NPAssn	45	15			139
Harrisburg, 83,893—Dauphin							
Dauphin County Hospital	Inst	County	176	160			130
Johnstown, 66,668—Cambria							
Municipal Hospital	Iso	City	45	2			35
Lancaster, 61,345—Lancaster							
Lancaster County Institution District	Inst	County	253	249			138
Lewisburg, 3,571—Union							
Ziegler Memorial Infirmary	Inst	NPAssn	28	2			159
Malvern, 1,080—Chester							
Point Comfort Rest Home	Conv	Indiv	48	44			36
Mercer, 2,272—Mercer							
Mercer County Home and Hospital	Inst	County	70	70			54
Middletown, 7,046—Dauphin							
Odd Fellows' Home	Inst	NPAssn	173	137			39
Morganza, 900—Washington							
Pennsylvania Training School Hospital	Inst	State	40	10			765
North East, 3,704—Erie							
St Barnabas' House by the Lake	Conv	Church	35	35			23
Olyphant, 9,252—Lackawanna							
Blakely Home and Hospital	Chr	County	277	244			88
Philadelphia, 1,931,334—Philadelphia							
Belle Vista Sanatorium	N&M	Indiv	78	75			601
Booth Memorial Hospital	Mat	Church	10	5	10	149	210
Florence Crittenton Home	Mat	NPAssn	24	6	12	55	62
Philadelphia County Prison Hospital (Holmesburg)	Inst	County	38	16			290
Philadelphia County Prison Hospital (Reed St Prison)	Inst	County	42	16			540
Philadelphia Home for Incurables	Incur	NPAssn	242	230			38
Pine Hall Convalescent Home	Conv	Indiv	22	18			20
Sharon Hall	Conv	Corp	60	No data supplied			
Tel Aviv Home for Elderly People	Conv	NPAssn	90	65			198
Pittsburgh, 671,659—Allegheny							
Booth Memorial Hospital	Mat	Church	7	3	6	86	109
Hasley Nursing Home	Conv	Indiv	20	10			30
Industrial Home for Crippled Children	Orth	NPAssn	86	75			46
Rochester, 7,441—Beaver							
Passavant Memorial Homes for the Care of Epileptics	Epil	Church	175	100			9
Scranton, 140,404—Lackawanna							
Eye, Ear, Nose and Throat Center	ENT	Part	9	2			693
Municipal Hospital	Iso	City	40	8	10	1	85
Selinsgrove, 2,877—Snyder							
Selinsgrove State Colony for Epileptics	Epil	State	952	950			59
Somerset, 5,430—Somerset							
Somerset State Hospital	Ment	State	500	435			33
Towanda, 4,154—Bradford							
Community Hospital	Gen	NPAssn	27	14	9	213	350
Willow Grove, 12,000—Montgomery							
Willow Crest for Convalescents	Conv	NPAssn	77	65			1,190

RHODE ISLAND

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Central Falls, 25,248—Providence							
Notre Dame Hospital	Gen	NPAssn	48	22	20	404	1,325
East Greenwich, 3,842—Kent							
Crawford Allen Memorial Hospital	Unit of Rhode Island Hospital, Providence						
Hillsgrove, 1,000—Kent							
St Joseph's Hospital	TB	Church	65	40			31
Howard, 5,000—Providence							
State Hospital for Mental Diseases+▲○	Ment	State	3,249	3,003			1,008
State Infirmary▲	Gen	State	988	809	20		713
Newport, 30,532—Newport							
Newport Hospital★▲○	Gen	NPAssn	188	125	36	755	4,497
U S Naval Hospital★▲	Gen	Navy	600	490	22	593	7,039
Pawtucket, 75,797—Providence							
Memorial Hospital★▲○	Gen	NPAssn	172	162	30	1,590	7,245
Providence, 253,504—Providence							
Butler Hospital+▲○	N&M	NPAssn	174	130			166
Charles V Chapin Hospital+▲○	TbIsoN&M	City	265	132			3,463
Jane Brown Memorial Hosp	Unit of Rhode Island Hospital						
Miriam Hospital▲	Gen	NPAssn	65	42	15	274	2,093
Providence Lying In Hospital+▲○	Mat	NPAssn	175	147	175	7,085	7,719
Rhode Island Hospital★+▲○	Gen	NPAssn	569	480			14,994
Roger Williams General Hospital★+▲○	Gen	NPAssn	162	136	34	1,354	5,800
St Joseph's Hospital★▲○	Gen	Church	310	227	60	1,538	8,013
Veterans Admin Hospital	Gen	Vet	303			Estab 1949	
Quonset Point, 980—Washington							
U S Naval Air Station Dispensary	Gen	Navy	207	73	24	518	9,449
Riverside, 5,000—Providence							
Emma Pendleton Bradley Home	NervChil	NPAssn	54	46			54
Wakefield, 4,000—Washington							
South County Hospital▲	Gen	NPAssn	46	32	11	395	1,617
Wallum Lake, 100—Providence							
State Sanatorium▲	TB	State	572	405			337
Westerly, 11,199—Washington							
Westerly Hospital▲	Gen	NPAssn	60	47	20	591	2,166
Woonsocket, 49,303—Providence							
Woonsocket Hospital▲	Gen	NPAssn	147	97	37	1,550	5,022

Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Hoxsie, 135—Kent							
Lakeside Home and Mary Murray Preventorium	TbChil	NPAssn	50	37			120
La Fayette, 600—Washington							
Exeter School	MeDe	State	864	833			61
Providence, 253,504—Providence							
St Elizabeth Home for Incurable Women	Incur	Church	70	70			110

Key to symbols and abbreviations is on page 38

SOUTH CAROLINA

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Abbeville 4 930—Abbeville							
Abbeville County Memorial Hospital	Gen	CyCo	40	21	10	312	1 387
Aiken 6 165—Aiken							
Aiken County Hospital▲	Gen	County	70	54	12	666	2 905
Anderson 19 424—Anderson							
Anderson County Memorial Hospital▲○	Gen	NPAssn	218	134	36	1 409	7 186
St Mary's Hospital	Gen	NPAssn	40	14	8	26	367
Beaufort 3,185—Beaufort							
Beaufort County Hospital	Gen	County	40	23	10	161	1 411
U S Naval Hospital	Gen	Navy	314		11	Estab	1949
Bennettsville 4 895—Marlboro							
Marlboro County General Hospital▲	Gen	NPAssn	86	55	20	544	2,985
Camden 5 747—Kershaw							
Camden Hospital▲○	Gen	NPAssn	76	51	13	424	2 770
Charleston 71,275—Charleston							
Baker Memorial Sanatorium▲	Gen	NPAssn	60	29	14	340	1,754
Pinehaven Sanatorium	TB	County	78	65			182
Roper Hospital★+▲○	Gen	NPAssn	450	324	60	1,322	12 637
St Francis Xavier Infirmary▲○	Gen	Church	111	72	26	961	3 512
U S Naval Hospital▲	Gen	Navy	400	314	24	359	5,531
Chester 6 392—Chester							
Chester County Hospital	Gen	County	48	26	10	318	1 457
Clinton 5 704—Laurens							
Hays Hospital	Gen	Indiv	21	9	6	185	754
Columbia, 62,396—Richland							
Columbia Hospital★+▲○	Gen	County	444	335	50	1,328	11,091
Good Samaritan Waverly Hospital○	Gen	NPAssn	70	40	14	182	881
Providence Hospital▲	Gen	Church	96	68	26	779	3,338
Ridgewood Tuberculosis Sanatorium	TB	NPAssn	56	43			42
South Carolina Baptist Hospital▲○	Gen	Church	205	186	30	1 072	6,989
South Carolina State Hosp ○	Ment	State	4,855	5 095			1,893
Veterans Admin Hospital+▲	Gen	Vet	700	630			6,232
Waverley Sanitarium	N&M	Corp	30	27			141
Conway 5 066—Horry							
Conway Hospital▲	Gen	NPAssn	65	45	19	1 006	4 922
Dillon, 3,867—Dillon							
St Eugene Hospital	Gen	Church	60	33	15	546	2 166
Florence 16,054—Florence							
Florence-Darlington Tuberculosis Sanatorium	TB	Counties	80	71			76
McLeod Infirmary★▲○	Gen	NPAssn	200	144	38	850	7,845
South Carolina Public Health Hospital	Ven	State	250	132	10	16	6 686
Fort Jackson —Richland							
Station Hospital▲	Gen	Army	500	215	16	605	6,946
Gaffney 7 636—Cherokee							
Cherokee County Hospital	Gen	County	56	43	8	620	2,883
Greenville 34 734—Greenville							
Greenville County Tuberculosis Sanatorium	TB	County	75	68			51
Greenville General Hosp ★+▲○	Gen	City	331	273	31	2 427	12 059
Dr Jervey's Private Hosp	ENT	Indiv	15	3			382
St Francis Hospital▲	Gen	Church	107	92	20	1 020	5 546
Shriners Hospital for Crippled Children+▲	Orth	NPAssn	60	54			256
Greenwood 13 020—Greenwood							
Brewer Hospital	Gen	NPAssn	32	18	4	133	635
Greenwood Hospital▲	Gen	NPAssn	85	64	16	658	3 118
Hartsville, 5 399—Darlington							
Byerly Hospital	Gen	NPAssn	74	56	18	543	3 785
Hemingway 536—Williamsburg							
Johnson Memorial Hospital	Gen	Indiv	56	21	10	133	1,498
Kingstree 3 182—Williamsburg							
Kelley Memorial Hospital	Gen	Corp	55	30	13	300	2,067
Lake City 2,522—Florence							
Whitehead Infirmary	Gen	Indiv	14	11	5	180	638
Lancaster 4 430—Lancaster							
Marion Sims Memorial Hospital▲	Gen	NPAssn	52	39	11	612	2 607
Laurens 6,894—Laurens							
Laurens County Hospital	Gen	County	62	33	14	318	1 568
Moncks Corner 1 165—Berkeley							
Berkeley County Hospital	Gen	NPAssn	44	20	12	241	985
Mullins 4,392—Marion							
Martin Private Hospital	Gen	Indiv	50	8	10	292	2,892
Mullins Hospital○	Gen	City	65	39	18	655	2,762
Newberry 7 510—Newberry							
Newberry County Hospital	Gen	County	36	29	12	414	1 759
Orangeburg 10,521—Orangeburg							
Tri County Hospital+▲○	Gen	City	202	101	24	730	5 971
Urological Institute	Unit of Tri-County Hospital						
Ridgeland 1 021—Jasper							
Ridgeland Hospital	Gen	NPAssn	38	18	10	178	1 065
Rock Hill 15 009—York							
Dunlap Hospital	Gen	Indiv	14	3			384
St Philip's Mercy Hospital	Gen	Church	65	56	16	548	3 116
York County Hospital▲○	Gen	County	143	72	20	758	4 123
Seneca 2,155—Oconee							
Oconee Memorial Hospital	Gen	NPAssn	40	36	12	627	2 473
Spartanburg 32,249—Spartanburg							
Mary Black Memorial Hospital▲○	Gen	NPAssn	60	40	0	137	2 351
Spartanburg General Hospital★▲○	GenTb	County	296	265	57	2 425	11 632

SOUTH CAROLINA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
State Park 100—Richland							
Palmetto Sanatorium	Unit of South Carolina Sanatorium						
South Carolina Sanatorium▲	TB	State	550	414			691
Summerville 3 023—Dorchester							
Dorchester County Hospital	Gen	County	52	18	10	142	1,085
Sumter 15,874—Sumter							
Tuomey Hospital▲○	Gen	NPAssn	158	131	32	1,044	5 706
Travellers Rest 1,200—Greenville							
Coleman Hospital	Gen	Indiv	25	10	5	98	355
Union 8 478—Union							
Wallace Thomson Hospital	Gen	City	29	25	11	442	1,567
Walterboro 3,373—Colleton							
Colleton County Hospital	Gen	County	72	35	20	345	2,494
Woodruff 3,508—Spartanburg							
Workman Memorial Hospital	Gen	Indiv	14	10	5	133	602

Related Institutions

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Clinton 5 704—Laurens							
State Training School	MeDe	State	996	942			78
Greenville 34,784—Greenville							
McClaren Medical Shelter	Gen	Indiv	12		3	Estab	1949
Newberry 7 510—Newberry							
Peoples Hospital	Gen	NPAssn	15	5	3	19	191

SOUTH DAKOTA

Hospitals and Sanatoriums

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Aberdeen 17 015—Brown							
St Luke's Hospital▲○	Gen	Church	235	195	50	1 136	9 060
Belle Fourche 2,496—Butte							
John Burns Memorial Hosp	Gen	NPAssn	25	22	8	215	1,313
Britton 1,500—Marshall							
Britton General Hospital	Gen	Church	25	15	9	221	1 114
Brookings 5 346—Brookings							
Brookings Municipal Hosp	Gen	City	48	35	12	372	1 821
Burke 602—Gregory							
Community Memorial Hosp	Gen	NPAssn	30	18	8	140	870
Cheyenne Agency 121—Dewey							
Cheyenne River Indian Hosp	Gen	IA	40	15	8	79	619
Deadwood 4 100—Lawrence							
St Joseph's Hospital▲	Gen	Church	68	54	16	451	2 097
Dell Rapids 1 706—Minnehaha							
Dell Rapids Hospital	Gen	Part	20	10	6	46	493
Eureka 1 457—McPherson							
Eureka Community Hospital	Gen	NPAssn	26	23	8	248	1,397
Flandreau 2,212—Moody							
Flandreau Municipal Hosp	Gen	City	20	9	5	146	551
Fort Meade —Meade							
Veterans Admin Hospital	Ment	Vet	720	639			327
Gregory 1 246—Gregory							
Mother of Grace Hospital	Gen	Church	17	12	7	143	701
Hot Springs 4 083—Fall River							
Lutheran Hospital	Gen	Church	75	71	12	226	1 412
Our Lady of Lourdes Hospital and Sanitarium	Gen	Church	55	38	11	135	1,391
Veterans Admin Center▲	Gen	Vet	970	23			1 469
Hoven 369—Potter							
Holy Infant Hospital	Gen	Church	30	10	8	150	1 112
Huron 10 843—Beadle							
St John's Hospital▲○	Gen	Church	152	103	20	713	3 904
Igloo 3 800—Fall River							
Station Hospital	Gen	Army	10	4	5	36	256
Lead 7 520—Lawrence							
Homestake Hospital▲	Gen	NPAssn	25	11	5	5	409
Madison 5 018—Lake							
Madison Community Hosp ▲	Gen	NPAssn	50	33	12	310	2 037
Martin 1 013—Bennett							
St. Anthony's Hospital	Gen	Church	12	4	4	45	250
Milbank, 2 745—Grant							
St Bernard's Providence Hospital	Gen	Church	40	19	10	219	853
Miller 1 460—Hand							
Hand County Memorial Hospital	Gen	County	32	14	12	174	771
Mitchell 10 633—Davison							
Methodist State Hospital▲○	Gen	Church	116	97	21	403	3 243
St Joseph's Hospital▲○	Gen	Church	118	108	30	616	3 913
Mobridge 3 008—Walworth							
Lowe Hospital	Gen	Indiv	20	12	6	150	833
Mobridge Hospital	Gen	NPAssn	36	29	8	[illegible]	1 082
Parkston 1,305—Hutchinson							
St Benedict Hospital	Gen	Church	35	27	12	353	1,359
Pierre, 4,322—Hughes							
St Mary's Hospital▲	Gen	Church	102	[illegible]	18	461	3 541
Pine Ridge, 618—Shannon							
Pine Ridge Indian Hospital	Gen	IA	35	30	13	171	1,371
Rapid City 13,844—Pennington							
Black Hills General Hosp ▲	Gen	NPAssn	51	45	13	353	2,346
St John's McNamara Hospital▲○	Gen	Church	100	81	25	671	[illegible]
Sioux Sanatorium▲	TB	IA	170	165			231
Redfield 2 428—Spink							
Baldwin Community Hosp	Gen	City	18	12	6		
Rosebud 258—Todd							
Rosebud Indian Hospital	Gen	IA	40	24	[illegible]	[illegible]	873
Sanator 10—Custer							
South Dakota State Sanatorium for Tuberculosis▲	TB	State	[illegible]	[illegible]			[illegible]

Key to symbols and abbreviations is on page 38

SOUTH DAKOTA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Sioux Falls, 40,831—Minnehaha							
McKennan Hospital★▲○	Gen	Church	164	102	50	1,138	7,617
Sioux Valley Hospital★▲○	Gen	NPAssn	190	101	30	1,189	10,402
Veterans Admin Center	Gen	Vet	273			Estab	1949
Sisseton, 2,513—Roberts							
Roberts County Community Hospital	Gen	NPAssn	18	12	6	120	720
Sisseton Indian Hospital	Gen	IA	32	21	8	75	775
Tekakwitha Hospital	Gen	Church	40	17	8	91	672
Volga, 632—Brookings							
Volga Hospital	Gen	NPAssn	21	7	8	112	395
Watertown, 10,617—Codington							
Bartron Hospital▲○	Gen	NPAssn	75	52	16	420	2,592
Lutheran Hospital▲	Gen	Church	73	41	13	457	2,092
Webster 2,173—Day							
Peabody Memorial Hosp ▲	Gen	NPAssn	30	24	12	211	1,357
Wessington Springs, 1,352—Jerauld							
Memorial Hospital	Gen	County	25	10	6	96	720
Yankton, 6,798—Yankton							
Sacred Heart Hospital★▲○	Gen	Church	290	144	24	775	4,855
Yankton State Hospital	Ment	State	1,888	1,663			458

Related Institutions

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Garretson, 660—Minnehaha							
DeVall Hospital	Gen	Indiv	10	1	2	9	26
Hot Springs, 4,083—Fall River							
State Soldiers' Home Hosp	Inst	State	36	20			246
Redfield, 2,428—Spink							
State School and Home for Feebleminded	MeDe	State	750	745			45
Viborg, 659—Turner							
Viborg Hospital	Gen	Indiv	11	5	5	94	200
Wagner 1,310—Charles Mix							
Duggan Hospital	Gen	Part	18	9	7	50	270
Yankton Indian Hospital	Gen	IA	25	11	5	50	509

TENNESSEE

Hospitals and Sanatoriums

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Athens, 6,930—McMinn							
Epperson Clinic Hospital	Gen	Indiv	60	22	8	379	1,717
Force Hospital	Gen	Part	32	21	12	402	1,576
Bristol, 14,004—Sullivan							
Hooks English Infirmary	ENT	Part	10	2			536
Brownsville 4,012—Haywood							
Haywood County Memorial Hospital	Gen	NPAssn	35	25	12	310	1,877
Chattanooga, 128,163—Hamilton							
Baroness Erlanger Hospital★+▲○	Gen	CyCo	400	345	85	3,054	14,013
Barton Clinic Hospital	Gen	Indiv	13	9			360
Doyle Currey Clinic Hosp	Gen	Indiv	25	13	10	115	714
Earl R Campbell Clinic Hosp	Gen	Corp	24	21	7	168	1,535
East Tennessee Medical Center	Ven	State	125	50			2,518
Newell Hospital▲	Gen	Part	50	31	6	72	1,630
Park View Hospital	Gen	Indiv	20	11	12	283	661
Physicians and Surgeons Hospital	Gen	Indiv	24	16	12	463	1,260
Pine Breeze Sanatorium▲	TB	NPAssn	174	168			158
T C Thompson Children's Hospital+▲○	Chil	CyCo	75	62	25		2,203
Woman's Hospital	Gen	Indiv	30	36	24	505	1,365
Clarksville 11,831—Montgomery							
Clarksville Hospital	Gen	NPAssn	48	33	10	577	1,066
Cleveland, 11,351—Bradley							
Physicians and Surgeons Hospital	Gen	Indiv	25	8	4	118	753
Speck Hospital	Gen	NPAssn	25	17	10	501	1,563
Columbia, 10,579—Maury							
Kings Daughters Hospital	Gen	NPAssn	50	38	14	573	2,122
Dayton 1,670—Rhea							
Broyles Hospital	Gen	Indiv	12	4	4	102	260
Thomison Hospital	Gen	Indiv	14	14	4	40	500
Dyersburg, 10,034—Dyer							
Baird Brewer General Hospital▲	Gen	Corp	46	25	12	531	2,087
Elizabethton, 8,516—Carter							
Franklin Clinic and Hosp	Gen	NPAssn	30	22	8	302	2,520
St Elizabeth General Hosp	Gen	Corp	35	25	12	465	1,806
Erwin, 3,350—Unicoi							
Erwin Community Hospital	Gen	NPAssn	18	5	8	307	716
Fountain Head, 225—Sumner							
Fountain Head Sanitarium and Hospital	Gen	Church	25	10	6	200	499
Franklin, 4,120—Williamson							
Dan German Hospital	Gen	Part	18	No data supplied			
Walter Pyle Hospital	Gen	Indiv	13	4	4	54	400
Greeneville, 6,784—Greene							
Campbell's Hospital	Gen	Part	15	6	6	143	537
Greeneville Sanatorium and Hospital▲	Gen	Corp	50	30	16	245	1,402
Laughlin Clinic Hospital	Gen	Indiv	30	27	10	305	1,185
Leurline Reaves Sanatorium	TB	State	32	22			145
Takoma Hospital and Sanitarium▲	Gen	NPAssn	65	50	12	252	1,914
Harriman, 5,620—Roane							
Harriman Hospital	Gen	City	41	30	8	483	2,055
Humboldt, 5,160—Gibson							
Oursler Clinic Hospital	Gen	Indiv	10	6	4	63	420
St Mary's Hospital	Gen	Church	50	21	10	449	1,758
Jackson, 24,332—Madison							
Doctors Hospital	Gen	Corp	25	14	6	144	1,241
Fitts White Hospital	Gen	Part	46	32	15	283	1,627
Memorial Hospital	Gen	NPAssn	35	24	10	184	2,003
Webb Williamson Hospital Clinic	Gen	Corp	26	22	6	391	1,444
Jefferson City, 2,576—Jefferson							
Milligan Clinic Hospital	Gen	Part	20	12	6	245	1,143
Johnson City, 25,332—Washington							
Appalachian Hospital▲○	Gen	NPAssn	77	72	21	1,125	4,441
Budd Clinic and Hospital	Gen	Indiv	12	9	3	96	468
Campbell's Eye, Ear, Nose and Throat Hospital	ENT	Indiv	8	2			485
Jones Eye, Ear, Nose and Throat Hospital▲	ENT	Part	27	13			1,281
Kingsport, 14,404—Sullivan							
Holston Valley Community Hospital▲	Gen	NPAssn	163	126	41	1,856	7,724
Knoxville 111,580—Knox							
Beverly Hills Sanatorium	TB	CyCo	140	90			160
Dr H E Christenberry Eye, Ear, Nose and Throat Infirmary	ENT	Indiv	11	4			645
Eastern State Hospital	Ment	State	2,197	2,100			650
East Tennessee Baptist Hospital	Gen	Church	216	135	36	859	6,382
Fort Sanders Hosp ★▲○	Gen	NPAssn	200	191	45	1,891	7,650
Kingston Pike Hospital	Gen	Part	35	14	5	8	830
Knoxville General Hosp ★+▲○	Gen	City	285	188	40	1,323	8,759
St Mary's Memorial Hospital★▲○	Gen	Church	250	153	36	1,014	6,920
La Follette, 4,010—Campbell							
Doctor's Hospital	Gen	Indiv	18	7	6	170	416
LaFollette Hospital	Gen	Corp	28	11	7	234	867
Lawrenceburg, 3,807—Lawrence							
Lawrenceburg Hospital and Sanitarium	Gen	Church	45	14	10	395	1,409
Lebanon, 5,050—Wilson							
Martha Gaston Hospital	Gen	Indiv	25	17	10	293	1,508
McFarland Hospital	Gen	Indiv	43	42	6	440	3,059
Lewisburg, 3,582—Marshall							
Gordon Hospital	Gen	Corp	31	19	7	62	995
Wheat Memorial Hospital	Gen	Indiv	13	8	6	110	570
Lexington, 2,520—Henderson							
Conger Clinic Hospital	Gen	Indiv	12	4	7	161	350
Loudon 3,017—Loudon							
Charles H Bacon Hosp	Gen	County	30	16	14	323	955
Madison College 510—Davidson							
Madison Rural Sanitarium and Hospital▲○	Gen	NPAssn	165	133	20	419	3,646
Maryville 5,609—Blount							
Blount Memorial Hosp	Gen	County	70	69	20	1,175	3,946
McMinnville 4,649—Warren							
Medical Clinic and Hospital	Gen	Part	25	15	8	520	1,186
Memphis 292,942—Shelby							
Baptist Memorial Hosp ★+▲○	Gen	Church	500	427	50	2,182	19,669
Campbell Clinic Hospital+▲	Orth	Part	60	53			1,974
Carrol Turner Sanatorium	N&M	Indiv	33	24			321
Collins Chapel Connectional Hospital	Gen	Church	60	31	15	223	1,162
Crippled Children's Hospital School	Orth	NPAssn	45	40			78
Gailor Memorial Psychiatric Hospital○	Ment	State	52	41			386
Gartly Ramsay Hospital▲	N&M	Corp	50	42			1,464
Hospital for Crippled Adults▲	Orth	NPAssn	66	39			523
John Gaston Hospital★+▲○	Gen	City	489	452	61	3,127	16,497
McLemore Clinic-Hospital	Gen	Corp	52	27	6	129	1,210
Memphis Eye, Ear, Nose and Throat Hospital+▲	ENT	Church	60	9			3,167
Methodist Hospital★+▲○	Gen	Church	267	244	60	3,002	12,650
Psychiatric Hospital	Unit of Western State Hospital, Western State Hospital, Tenn						
St Joseph Hospital★+▲○	Gen	Church	280	251	60	1,024	10,890
U S Marine Hospital▲	Gen	USPHS	134	103			1,574
U S Naval Hospital▲	Gen	Navy	350	261	15	592	3,961
Veterans Admin Hosp ▲	TB	Vet	300	283			625
Veterans Admin Hospital (Kennedy)+▲	Gen	Vet	1,400	1,186			12,551
Wallace Sanitarium	N&M	Indiv	50	35			898
West Tennessee Medical Center	Ven	State	150	62			2,404
West Tennessee Tuberculosis Hospital○	TB	State	250	200			601
Milan, 3,035—Gibson							
Milan Hospital	Gen	Corp	20	10	10	259	766
Morristown, 8,050—Hamblen							
Bellaire Hospital	Gen	Indiv	17	4	3	56	1,113
Hamblen Hospital	Gen	NPAssn	35	12	11	268	795
Nabers Clinic-Hospital	Gen	Indiv	20	12	8	130	988
Mountain Home, 250—Washington							
Veterans Admin Center▲	Gen	Vet	605	463			4,168
Murfreesboro, 9,495—Rutherford							
Rutherford Hospital▲	Gen	NPAssn	46	37	17	655	2,505
Veterans Admin Hospital▲	Ment	Vet	1,307	1,021			924

Key to symbols and abbreviations is on page 38

TENNESSEE—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Nashville 167 402—Davidson							
Central State Hospital	Ment	State	2,016	2 045			494
City View Sanitarium	N&M	Part	55	33			395
Davidson County Hospital	Ment	County	800	749			400
Davidson County Tuberculosis Hospital▲	TB	County	300	212			491
Geo W Hubbard Hospital of Meharry Medical College★+▲○	Gen	NPAssn	200	116	25	772	3 773
Hospital for the Criminal Insane	Unit of Central State Hospital						
Middle Tennessee Tuberculosis Hospital	TB	State	54	49			303
Mid-State Baptist Hosp ★+▲○	Gen	Church	115	95	18	829	5,234
Nashville General Hosp ★+▲○	Gen	City	260	167	35	1,250	6 142
Riverside Sanitarium and Hospital	Gen	Church	85	22	16	71	632
St Thomas Hospital★+▲○	Gen	Church	233	190	37	2 095	12 000
Vanderbilt University Hospital★+▲○	Gen	NPAssn	340	231	58	1 669	9 495
Veterans Admin Hospital+▲	Gen	Vet	608	557			7 076
Oak Ridge 35 200—Anderson							
Oak Ridge Hospital▲	Gen	NPAssn	224	139	39	912	7 703
Oakville 163—Shelby							
Oakville Memorial Sanatorium+	TB	CyCo	875	236			410
Paris 6 395—Henry							
McSwain Clinic Hospital	Gen	Indiv	24	9	4	131	561
Nobles Memorial Hospital	Gen	Part	25	18	7	162	1,182
Pikeville 759—Bledsoe							
Bledsoe Memorial Hospital	Gen	Corp	12		4	Estab	1949
Pleasant Hill 178—Cumberland							
Uplands Cumberland Mountain Sanatorium	GenTb	NPAssn	48	29	5	116	588
Pressmen s Home 200—Hawkins							
International Printing Pressmen and Assistants Union Sanatorium	TB	NPAssn	40	25			5
Pulaski 5 314—Giles							
Pulaski Hospital	Gen	Indiv	20	10	5	307	1,017
Rockwood 3,981—Roane							
Chamberlain Memorial Hosp	Gen	NPAssn	35	21	10	397	1 377
Rogersville 2 018—Hawkins							
Lyons Hospital	Gen	Indiv	10	8	6	238	457
Sevierville 1 161—Sevier							
Broady Hospital	Gen	Indiv	13	7	3	212	621
Wilson Hospital	Gen	Indiv	30	4	6	88	370
Sewanee 1 600—Franklin							
Emerald Hodgson Hospital	Gen	Church	50	22	12	178	1 726
Springfield 6 068—Robertson							
Robertson County Hospital	Gen	County	25	18	10	450	1 028
Sweetwater 2 593—Monroe							
Sweetwater Hospital▲	Gen	NPAssn	30	19	8	383	1 515
Union City 7 256—Obion							
Union City Clinic Hospital	Gen	Corp	15	11	3	211	1 021
Waynesboro 765—Wayne							
Cullen C Woods Memorial Hospital	Gen	Indiv	20	6	6	161	802
Western State Hospital —Hardeman							
Western State Hospital▲	Ment	State	2 350	2 331			530
Woodbury 663—Cannon							
Good Samaritan Hospital	Gen	County	55	19	7	168	1 344

Related Institutions

Chattanooga 128 163—Hamilton							
Carver Memorial Hospital	Gen	CyCo	50	9	12	219	578
William L. Bork Memorial Hospital	Ment	County	300	244			83
Donelson 1 500—Davidson							
Tennessee Home and Training School for Feebleminded Persons	MeDe	State	698	776			29
Fayetteville 4 684—Lincoln							
Lincoln County Hospital	Gen	County	40	23	14	520	2 011
Johnson City 25,332—Washington							
McKee-Wilson Eye Hospital	Eye	Part	19	12			616
Knoxville 111 580—Knox							
Tennessee School for Deaf	Inst	State	20	1			679
University of Tennessee Hospital	Inst	State	35	8			603
Memphis 292 942—Shelby							
Dr Henry G Hill Clinic Hospital	Orth	Part	10	4			245
Shelby County Hospital	Inst	County	685	449			275
Nashville 167 402—Davidson							
Junior League Home for Crippled Children	Orth	NPAssn	50	38			81
Tennessee State Penitentiary Hospital	Inst	State	150	33			477
Shelbyville 6 537—Bedford							
Bedford County Hospital	Gen	NPAssn	83	20	7	843	1 433

TEXAS

Hospitals and Sanatoriums

Abilene 26 612—Taylor							
Abilene State Hospital	Epil	State	1 394	1 357			117
Hendrick Memorial Hosp ▲○	Gen	Church	225	169	30	953	6 891
St Ann Hospital▲	Gen	Church	30	23	14	467	2 292

TEXAS—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Alice 7 792—Jim Wells							
Physicians and Surgeons Hospital	Gen	Corp	60	31	10	539	2 700
Alvin 3 057—Brazoria							
Alvin Memorial Hospital	Gen	Indiv	20	5	8	185	800
Amarillo 51 686—Potter							
Northwest Texas Hospital▲○	Gen	County	150	123	30	1 292	7 171
St Anthony s Hospital▲○	Gen	Church	127	109	23	782	6 144
Underwood Clinic Hospital—Amarillo Preventorium	TB	NPAssn	80	43			93
Veterans Admin Hospital	Gen	Vet	187	152			2,154
M L Wyatt Memorial Hosp	Gen	Indiv	16	9	5	70	623
Andrews 611—Andrews							
Andrews County Hospital	Gen	County	17	10	7	138	734
Atlanta 2 453—Cass							
Brooks Clinic-Hospital	Gen	Part	20	12	4	108	1 351
Ellington Memorial Hospital	Gen	Part	12	7	8	152	546
Austin 87,930—Travis							
Austin State Hospital	Ment	State	2 810	2,925			1 402
Austin Travis County Tuberculosis Sanatorium	TB	CyCo	48	43			82
Brackenridge Hospital★+▲○	Gen	City	237	154	35	1 589	6 664
Holy Cross Hospital	Gen	Church	19	11	7	261	736
St David s Hospital	Gen	Church	61	44	20	726	3 129
Seton Hospital▲○	Gen	Church	125	61	30	1 004	4,924
Station Hospital	Gen	USAF	50	10			468
Baird 1 810—Callahan							
Callahan County Hospital	Gen	County	23	5	5	137	972
Ballinger 4 472—Runnels							
Bailey Clinic-Hospital	Gen	Indiv	15	12	6	216	678
Bastrop 1,976—Bastrop							
F A. Orgain Hospital	Gen	Part	14	6	6	140	549
Bay City 6,594—Matagorda							
Matagorda General Hospital	Gen	County	45	27	14	422	2,231
Baytown 5 194—Harris							
Baytown Hospital	Gen	Corp	37	24	12	435	2 048
Lillie and Duke Hospital	Gen	Part	24	12	8	168	1 023
San Jacinto Memorial Hosp ▲	Gen	NPAssn	62	30	15	432	2 548
Beaumont 59 061—Jefferson							
Baptist Hospital	Gen	Church	138		35	Estab	1949
Beaumont Municipal Hosp	Gen	City	40	26	10	207	1 079
Douglas Hospital	Gen	Indiv	16	8	4	48	957
Hotel Dieu Hospital▲○	Gen	Church	184	110	12	40	5 408
Jefferson County Tuberculosis Hospital No 1	TB	County	130	93			142
Jefferson County Tuberculosis Hospital No 2	Unit of Jefferson County Tuberculosis Hospital No 1						
Martin DePorres Negro Hosp	Unit of Hotel Dieu Hospital						
St Therese Hospital▲	Gen	Church	90	90	30	1 232	4 360
Beeville 6 789—Bee							
Beeville Hospital	Gen	Indiv	40	25	10	167	924
Thomas Memorial Hospital	Gen	Corp	22	15	12	259	1 015
Bellville 1 347—Austin							
Bellville Hospital	Gen	Part	10	6	4	172	791
Belton 3 572—Bell							
Sewell Hospital	Gen	Part	21	10	6	249	825
Big Spring 19 604—Howard							
Big Spring Hospital	Gen	Corp	45	27	6	253	2 492
Big Spring State Hospital	Ment	State	406	465			990
Cowper Clinic and Hospital	Gen	Indiv	34	18	8	84	1 080
Malone and Hogan Clinic Hospital▲	Gen	Part	45	36	15	205	2 775
Medical Arts Clinic Hospital	Gen	Part	50	27	10	227	1 013
Blanco 453—Blanco							
Hospital in the Hills	Gen	Indiv	12	5	3	69	289
Boerne 1 271—Kendall							
Boerne Hospital	Gen	Indiv	11		3	Estab	1949
Bonham 6 349—Fannin							
S B Allen Memorial Hosp	Gen	NPAssn	32	10	6		740
Medical and Surgical Clinic Hospital	Gen	Corp	31	16	10	253	1 226
Borger 10 018—Hutchinson							
Casa Serena Hospital	Gen	Corp	12	3	3	17	187
North Plains Hospital	Gen	County	70	42	21	845	3 311
Bowie 3 470—Montague							
Bowie Clinic Hospital	Gen	Corp	26	23	8	169	1 531
Brady 5 002—McCulloch							
Brady Hospital	Gen	Part	60	30	11	187	1 551
Medical and Surgical Hosp	Gen	Indiv	17	7	7	90	576
Brenham 6 435—Washington							
St Francis Hospital	Gen	Church	25	15	8	136	741
Sarah B Milroy Memorial Hospital	Gen	Corp	32	12	8	181	915
Bridgport 1 735—Wise							
Bridgport Hospital	Gen	Part	16	6	4	105	639
Brownfield 4 009—Terry							
Treadaway Daniell Hospital	Gen	Part	33	16	10	291	1 270
Brownsville 22 083—Cameron							
Mercy Hospital▲	Gen	Church	50	35	13	780	3 151
Brownwood 13 393—Brown							
Brownwood Memorial Hosp	Gen	NPAssn	64	31	12	453	2 126
Medical Arts Hospital	Gen	NPAssn	30	19	8	113	1 279
Bryan 11 842—Brazos							
Bryan Hospital	Gen	Indiv	25	14	9	229	1 135
St Joseph Hospital	Gen	Church	25	12	9	571	1 695
Burnet 1,945—Burnet							
Allen Hospital	Gen	Indiv	13	5	4	105	635
Shepperd Memorial Hospital	Gen	NPAssn	17	12	6	90	810

Key to symbols and abbreviations is on page 38

TEXAS—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Camden 800—Polk							
Camden Hospital	Gen	Part	11		0		
Cameron, 5,040—Milam							
Newton Memorial Hospital	Gen	NPAssn	50	22	8	41	909
St Edward Hospital	Gen	Church	38	18	8	236	1,158
Camp Hood,—Bell							
Station Hospital	Gen	Army	200	119	14	545	4,171
Canadian, 2,151—Hemphill							
Hemphill County Memorial Hospital	Gen	County	16		6	Estab	1949
Canyon, 2,662—Randall							
Neblett Hospital	Gen	Indiv	19	6	9	164	1,140
Carrizo Springs, 2,494—Dimmit							
Dimmit County Memorial Hospital	Gen	County	26		8	Estab	1949
Castroville 1,500—Medina							
Castroville Hospital	Gen	Indiv	10	3	4	104	292
Center, 3,010—Shelby							
Center Sanitarium	Gen	Indiv	18	5	5	233	670
Warren Hospital	Gen	Part	18	9	6	178	631
Childress, 6,464—Childress							
Childress General Hospital	Gen	County	16	5	5	259	793
Chillicothe, 1,423—Hardeman							
Chillicothe Hospital	Gen	NPAssn	18		5	Estab	1950
Cisco, 4,868—Eastland							
Graham Sanitarium	Gen	Indiv	22	7	5	125	1,104
Clarksville, 4,095—Red River							
Red River County Hospital	Gen	County	34	12	16	204	1,292
Cleburne, 10,558—Johnson							
Johnson County Memorial Hospital	Gen	County	47	22	8	309	2,131
Cleveland, 1,783—Liberty							
Cleveland Hospital	Gen	Part	23	11	6	289	1,059
Clifton 1,732—Bosque							
Goodall and Witcher Clinic Hospital	Gen	Part	25	13	6	150	792
Coleman, 6,054—Coleman							
Overall Memorial Hospital	Gen	Church	30	12	7	234	1,414
College Station, 2,184—Brazos							
Agricultural and Mechanical College Hospital	Inst	State	150	9			1,067
Colorado City, 5,213—Mitchell							
Root Memorial Hospital	Gen	Indiv	28	24	10	254	1,003
Columbus, 2,422—Colorado							
Columbus Hospital and Clinic	Gen	Part	20	9	5	151	737
Commerce, 4,699—Hunt							
Allen Hospital	Gen	Indiv	10	8	4	83	803
Allen Memorial Hospital	Inst	State	30	7			467
Leberman Clinic and Hosp	Gen	Indiv	28	15	8	156	508
Conroe, 4,624—Montgomery							
Montgomery County Hosp	Gen	County	48	35	8	451	2,595
Corpus Christi 57,301—Nueces							
Carline Clinic Hospital	Gen	Indiv	10	6	6	86	402
Crippled Children's Hospital▲	Orth	NPAssn	30	20			97
Ghormley Clinic Hospital	Gen	Indiv	25	15		2	955
Memorial Hospital★▲	Gen	CyCo	148	110	24	1,302	5,767
Spohn Hospital▲	Gen	Church	92	73	35	1,183	6,188
Thomas Spann Clinic and Hospital	Gen	Part	16			Estab	1949
U S Naval Air Station Dispensary	Gen	Navy	73	10			1,113
U S Naval Hospital▲	Gen	Navy	400	230	23	350	3,907
Corsicana, 15,232—Navarro							
Corsicana Hospital	Gen	NPAssn	20	7	3	41	430
Navarro Clinic Hospital	Gen	Part	20	14	8	189	1,057
Physicians and Surgeons Hospital	Gen	County	51	41	10	463	1,602
Cotulla, 3,633—La Salle							
Myers Hospital	Gen	Indiv	10	4	4	92	593
Crockett 4,536—Houston							
Butler Memorial Hospital	Gen	Indiv	40	No data supplied			
Crockett Medical and Surgical Hospital	Gen	Part	22	12	6	109	911
Jim Smith Memorial Hosp	Gen	Part	20	12	2	112	692
Crosbyton, 1,615—Crosby							
Crosbyton Clinic Hospital	Gen	NPAssn	35	13	7	155	1,000
Crowell 1,817—Foard							
Foard County Hospital	Gen	County	16	6	4	87	508
Crystal City, 6,529—Zavala							
Crystal Clinic and Hospital	Gen	Indiv	25	6	6	159	469
Cuero, 5,474—DeWitt							
Burns Hospital	Gen	Church	30	19	6	100	918
Cuero Hospital and Clinic	Gen	Indiv	24	14	6	185	1,178
Dalhart, 4,682—Dallam							
Loretto Hospital	Gen	Church	40	21	12	207	1,305
Dallas, 294,734—Dallas							
Baylor University Hosp★+▲○	Gen	Church	396	342	80	5,032	17,726
Beverly Hills Sanitarium	N&M	Corp	102	92			978
Bradford Memorial Hospital for Babies	Unit of Children's Medical Center						
Carman Sanatorium	TB	NPAssn	25	23			46
Children's Hospital	Unit of Children's Medical Center						
Children's Medical Center+▲○	Chil	NPAssn	120	93			2,747
Dallas Medical and Surgical Clinic Hospital▲	Gen	Part	23	20			1,895
East Dallas Hosp and Clinic	Gen	Corp	40	21	7	246	1,677
Gaston Hospital+▲	Gen	NPAssn	55	57			2,475
Jones Eye, Ear, Nose and Throat Hospital	ENT	Indiv	11	No data supplied			

TEXAS—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Maxfield X Ray and Radium Clinic Hospital	Cancer	Part	16	6			365
Medical Arts Hospital▲	Gen	Corp	109	97			5,049
Methodist Hospital★+▲○	Gen	Church	208	170	42	2,468	10,733
Nightingale Lying In Hosp	Unit of Baylor University Hospital						
Oak Lawn Medical and Surgical Clinic Hospital	Gen	Part	16			Estab	1949
Parkland Hospital★+▲○	Gen	CyCo	357	283	59	1,784	7,779
Pinkston Clinic Hosp	Gen	Indiv	17	10	5	118	471
St Paul's Hospital★+▲○	Gen	Church	310	260	40	3,799	12,839
Texas Scottish Rite Hospital for Crippled Children+▲	Orth	NPAssn	75	43			605
Timberlawn Sanitarium+	N&M	Corp	84	67			509
Veterans Admin Hosp +▲	Gen	Vet	355	317			3,945
Woodlawn Hospital+	TB	CyCo	100	93			156
Dayton, 1,279—Liberty							
Dayton Memorial Hospital	Gen	Part	25	10	7	213	1,332
Decatur, 2,578—Wise							
Decatur Clinic Hospital	Gen	Indiv	25	11	7	130	697
Rogers Hospital	Gen	Indiv	25	16	8	131	1,765
Del Rio, 11,693—Val Verde							
Del Rio Hospital	Gen	Indiv	19	9	6	208	980
Medical and Surgical Clinic and Hospital	Gen	Indiv	18	11	3	46	629
Nightingale Memorial Hosp	Gen	Indiv	25	10	6	63	908
Denison, 15,581—Grayson							
Madonna Hospital▲	Gen	Church	50	44	10	461	2,909
Missouri Kansas, Texas Railroad Employees Hospital	Indus	NPAssn	60	35			561
Denton 11,192—Denton							
Denton Hospital and Clinic	Gen	Indiv	35	25	8	346	2,628
Denver City, 700—Yoakum							
Yoakum County Hospital	Gen	County	15		4	Estab	1949
Deport, 822—Lamar							
Stephen H Grant Hospital	Gen	Corp	10	5	4	156	455
Dimmitt, 943—Castro							
Plains Memorial Hospital	Gen	NPAssn	26	9	7	85	620
Dublin, 2,546—Erath							
Dublin Hospital	Gen	Corp	15	6	5	113	563
Dumas, 2,117—Moore							
Memorial Hospital	Gen	County	27	15	9	365	1,440
Eagle Lake, 2,124—Colorado							
Laughlin Hospital	Gen	Indiv	14	6	5	90	450
Eagle Pass 6,459—Maverick							
Maverick County Memorial Hospital	Gen	County	30	10	12	80	682
East Bernard, 600—Wharton							
Albert Schubmann Hospital	Gen	Indiv	11	5	4	119	516
Eden 1,603—Concho							
Grafa Clinic and Hospital	Gen	Indiv	8	7	3	18	556
Edinburg, 8,718—Hidalgo							
Grandview Hospital	Gen	CyCo	52	32	12	544	2,299
El Campo 3,906—Wharton							
Nightingale Hospital	Gen	County	59	35	14	459	2,081
Electra 5,588—Wichita							
Electra Hospital	Gen	Indiv	23	8	6	120	536
Elgin, 2,008—Bastrop							
Fleming Hospital	Gen	Corp	16	12	6	94	788
El Paso 96,810—El Paso							
El Paso General Hosp★▲	Gen	CyCo	200	132	20	461	3,587
Hotel Dieu, Sisters' Hosp +▲○	Gen	Church	151	121	56	2,187	6,673
Newark Conference Maternity Hospital	Mat	Church	19	11	16	491	781
Providence Memorial Hosp▲	Gen	NPAssn	40	30			1,433
St Joseph Maternity Hosp +	Unit of Hotel Dieu Sisters Hospital						
St Joseph's Sanatorium	TB	Church	75	42			169
Southwestern General Hosp ▲	Gen	Corp	150	118	48	1,185	6,010
William Beaumont General Hospital★▲	Gen	Army	1,000	521	34	1,137	10,600
Ennis, 7,087—Ellis							
Ennis Municipal Hospital	Gen	City	80	12	8	286	1,086
Fabens, 1,623—El Paso							
Fabens Hospital	Gen	Indiv	20	9	6	197	702
Fairfield, 1,047—Freestone							
Freestone County Co Operative Hospital	Gen	NPAssn	25	11	8	43	224
Falfurrias, 2,641—Brooks							
Mercy Memorial Hosp	Gen	Corp	22	8	12	102	1,184
Floresville, 1,708—Wilson							
Floresville Hospital	Gen	Indiv	11		8	75	137
Floydada, 2,726—Floyd							
Floydada Hospital	Gen	Indiv	7	2	3	31	150
Peoples Hospital	Gen	NPAssn	18		6	Estab	1949
Pitts Hospital	Gen	Indiv	8	4	3	45	279
Fort Stockton, 3,294—Pecos							
J F Gibson Hospital	Gen	Indiv	20	12	8	120	1,874
Fort Worth, 177,662—Tarrant							
All Saints Hospital+▲	Gen	Church	110	104	25	1,438	5,985
City County Hospital★+▲○	Gen	CyCo	168	126	20	1,119	4,605
W I Cook Memorial Hosp	Gen	NPAssn	37	33		1	1,203
Dorsey Hospital	Gen	Indiv	21	6	6	33	245
Fort Worth Children's Hosp	Chil	NPAssn	37	12			338
Harris Hospital★+▲○	Gen	Church	308	266	78	3,091	13,217
Pennsylvania Avenue Hosp	Gen	Indiv	68	51	10	469	3,930
St Joseph's Hospital★▲○	Gen	Church	248	175	48	1,880	9,438
Station Hospital▲	Gen	USAF	100	54	19	237	2,361
U S Public Health Service Hospital+▲○	MentDrug	USPHS	1,050	887			1,760

Key to symbols and abbreviations is on page 38

TEXAS—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census†	Bassinets	Number of Births	Admissions†
Fredericksburg 3 544—Gillespie							
Fredericksburg Hospital and Clinic	Gen	Corp	25	5	8	203	987
Keidel Memorial Hospital	Gen	Part	16	8	5	153	574
Freeport 2 579—Brazoria							
Dow Hospital	Gen	NPAssn	54	26	12	313	3 678
Freeport Hospital	Gen	NPAssn	25	19	6	165	1 099
Friona 803—Parmer							
Parmer County Community Hospital	Gen	NPAssn	25	16	8	100	785
Gainesville 9 651—Cooke							
Gainesville Sanitarium	Gen	Corp	42	19	10	230	1,273
Medical and Surgical Hosp	Gen	Indiv	40	21	8	162	1 099
Galena Park 1 562—Harris							
Deaton Hospital	Gen	Indiv	19	10	7	266	944
Galveston 60 862—Galveston							
Galveston State Psychopathic Hospital+	Unit of University of Texas Medical Branch Hospitals						
Hospital for Crippled and Deformed Children	Unit of University of Texas Medical Branch Hospitals						
John Sealy Hospital	Unit of University of Texas Medical Branch Hospitals						
Negro Hospital	Unit of University of Texas Medical Branch Hospitals						
St Mary's Infirmary+▲○	Gen	Church	230	201	30	1 421	7 081
U S Marine Hospital★▲	Gen	USPHS	107	155			2,936
University of Texas Medical Branch Hospitals★+▲○	GenMent	State	656	543	26	1 186	10 203
Garrison 770—Nacogdoches							
Dora Garrison Health Center	Gen	NPAssn	17	1	6	30	90
Gatesville 3 177—Coryell							
Coryell Memorial Hospital	Gen	County	34	13	8	269	1 079
Georgetown 3 682—Williamson							
Georgetown Hosp and Clinic	Gen	NPAssn	21	17	6	166	900
Giddings 2 166—Lee							
Lee Memorial Hospital	Gen	NPAssn	34		7	Estab	1949
Gilmer 3 138—Upshur							
Oak Lawn Sanitarium	Gen	Indiv	15	5	5	98	538
Ragland Clinic Hospital	Gen	Part	30	13	10	350	1 428
Gladewater 4 454—Gregg							
Hancock Clinic and Hosp	Gen	Indiv	24	19	6	134	1 305
McKean Clinic Hospital	Gen	Indiv	26	20	6	97	1 873
Glen Rose 1 050—Somervell							
Hanna Hospital	Gen	Indiv	28	4	3	27	239
Gonzales 4 722—Gonzales							
Gonzales Warm Springs Foundation Hospital▲	Orth	NPAssn	116	82			218
Holmes Memorial Hospital	Gen	Indiv	19	8	6		391
Gorman 1 157—Eastland							
Blackwell Hospital	Gen	Part	50	27	8	349	2,007
Graham 5 175—Young							
Graham Hospital	Gen	NPAssn	25	12	6	248	977
Grand Saline 1 641—Van Zandt							
Cosby-Germany Hospital	Gen	Corp	21	9	4	102	1 024
Greenville 13,995—Hunt							
Becton Clinic and Hospital	Gen	Indiv	40	13	8	100	1 469
Little and Weis Hospital and Clinic	Gen	Part	17	6	7	296	675
Philips Clinic and Hospital	Gen	Indiv	50	13	14	228	1 144
Groesbeck 2,272—Limestone							
Dr Cox's Hospital	Gen	Indiv	7	6	5	41	400
Hale Center 836—Hale							
Hale County Cooperative Hospital	Gen	NPAssn	16		6	89	
Hallettsville 1,581—Lavaca							
Renger Hospital	Gen	Indiv	30	12	6	133	736
Hamilton 2 716—Hamilton							
Hamilton Clinic and Hosp	Gen	Corp	49	17	10	42	515
Hamlin 2,406—Jones							
Hamlin Memorial Hospital	Gen	NPAssn	17	13	4	50	700
Harlingen 13 306—Cameron							
Valley Baptist Hospital▲○	Gen	Church	100	61	20	696	3,817
Haskell 3 051—Haskell							
Haskell County Hospital	Gen	County	25	16	8	225	1 706
Hearne 3 511—Robertson							
Hearne Clinic-Hospital	Gen	Part	10	7	7	80	520
Henderson 6 437—Rusk							
Henderson Memorial Hosp	Gen	NPAssn	50	10	12	299	2,920
Henrietta 2 391—Clay							
Clay County Memorial Hosp.	Gen	County	23	8	6	70	524
Hereford 2 584—Deaf Smith							
Deaf Smith County Hosp	Gen	County	38	27	10	225	1 404
Hillsboro 7 799—Hill							
Boyd Sanitarium	Gen	Indiv	23	13	8	265	730
Hillsboro Clinic Hospital	Gen	Corp	25		6	Estab	1949
Houston 384 514—Harris							
M D Anderson Hospital for Cancer Research+▲	Cancer	State	82	50			1 455
Autry Memorial Hospital School	Unit of Houston Tuberculosis Hospital						
Dr Greenwood's Sanitarium	N&M	Corp	40	No data supplied			
Heights Hospital▲	Gen	Corp	70	61	20	902	4 432
Hermann Hospital★+▲○	Gen	NPAssn	600	256	75	2 007	10,812
Houston Eye Ear and Throat Hospital	ENT	NPAssn	23	12			1,566
Houston Negro Hospital	Gen	NPAssn	50	30	10	377	1,390
Houston Tuberculosis Hosp	TB	CyCo	198	180			224
Jefferson Davis Hosp ★+▲○	Gen	CyCo	441	390	52	2,860	12,555
Keightley Hospital	N&M	Indiv	37	24			277
Memorial Hospital+▲○	Gen	Church	262	257	40	2 624	14 389

TEXAS—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census†	Bassinets	Number of Births	Admissions†
Methodist Hospital★+▲○	Gen	Church	135	107	22	804	4,900
Montrose Hospital	N&M	Part	35	9			359
North Houston Hospital	Gen	Part	19	11	7	231	1 492
North Side Hospital	Gen	Part	22	8	4		
Park View Hospital	Gen	Part	35	14	6	256	1,248
St Elizabeth's Hospital	Gen	Church	50	19	18	765	1 894
St Joseph's Infirmary★+▲○	Gen	Church	377	355	110	6 623	20 865
Southern Pacific Hosp +▲	Indus	NPAssn	170	100			2 742
Turner Urological Institute	Urol	Indiv	20	14			705
Veterans Admin Hosp +	Gen	Vet	937			Estab	1949
Wright Clinic and Hosp ▲	Gen	Indiv	33	27	6	107	1 211
Jacksboro 2 368—Jack							
Jacksboro Hospital	Gen	Part	14	11	4	109	865
Jacksonville 7 213—Cherokee							
Nan Travis Memorial Hosp ▲	Gen	NPAssn	121	80	20	303	4 483
Jasper 3 497—Jasper							
Hardy Hancock Hospital	Gen	Part	27	8	6	110	450
Richardson Hospital	Gen	Part	21	14	10	125	653
Seale Clinic and Hospital	Gen	Indiv	18	9	3	25	400
Jefferson 2,707—Marion							
Terry DeWare Clinic Hosp	Gen	Part	10	3	4	82	329
Karnes City 1 571—Karnes							
Karnes County Hospital	Gen	NPAssn	24		16	Estab.	1949
Kaufman 2 654—Kaufman							
Hall-de Vlaming Hospital	Gen	Part	13	No data supplied			
Kenedy 2 891—Karnes							
Kenedy Clinic and Hospital	Gen	Indiv	22	11	6	154	738
Kermit 2,584—Winkler							
Winkler County Memorial Hospital	Gen	County	41	15	12	246	1,545
Kerrville 5 572—Kerr							
Kerrville State Sanatorium	TB	State	183	134			252
Sid Peterson Memorial Hosp	Gen	NPAssn	57	17	11	108	518
Sunnyside Sanatorium	TB	Indiv	21	13			29
Kilgore 6 708—Gregg							
Kilgore Memorial Hospital	Gen	NPAssn	21	19	7	302	1,551
Kingsville 7 782—Kleberg							
Brindley Clinic Hospital	Gen	Corp	10	4			398
Kleberg County Hospital	Gen	County	65	20	15	514	2 469
Knox City 1 127—Knox							
Knox County Hospital	Gen	County	38	20	8	248	2 139
La Grange 2 531—Fayette							
La Grange Hospital	Gen	Corp	45	22	9	268	1 051
Lamesa 6 038—Dawson							
Lamesa General Hospital	Gen	Part	40	26	6	411	2 186
Price Clinic and Hospital	Gen	Indiv	18	3	7	348	714
Lampasas 3 426—Lampasas							
Rollins Brook Hospital and Clinic	Gen	Part	23	14	5	177	942
Laredo 39 274—Webb							
Laredo-Webb County Tuberculosis Hospital	TB	CyCo	40	25			39
Mercy Hospital▲	Gen	Church	75	44	28	991	3 445
La Tuna 200—El Paso							
Federal Correctional Institution	Inst	USPHS	23	18			383
Legion 200—Kerr							
Veterans Admin Hospital+▲	TB	Vet	665	370			719
Levelland 3 091—Hockley							
Phillips Dupre Hospital	Gen	Part	26	19	8	276	1 916
Liberty 3 087—Liberty							
Mercy Hospital	Gen	Church	55	20	12	211	1 802
Yettie Kersting Memorial Hospital	Gen	County	20	13	2	103	1 108
Littlefield 3 817—Lamb							
Payne-Shotwell Hospital and Clinic	Gen	Part	40	17	10	119	1,530
Livingston 1,851—Polk							
Livingston Hospital	Gen	Indiv	17	7	4	140	694
Lockhart 5 018—Caldwell							
Lockhart Hospital	Gen	City	30	9	8	91	509
Lockney 1 231—Floyd							
Floyd County Co Operative Hospital	Gen	NPAssn	12	5	4	[illegible]	557
Longview 13 758—Gregg							
Gregg Memorial Hospital	Gen	County	40	31	8	452	2 161
Hurst Eye Ear, Nose and Throat Hospital	ENT	NPAssn	25	5			572
Markham Hospital	Gen	NPAssn	32	14	10	381	1 348
Medical and Surgical Clinic Hospital	Gen	Part	10	8	3		1 150
Lubbock 31,853—Lubbock							
Chatman Hospital-Clinic	Gen	Indiv	16	4	8	58	350
Lubbock Memorial Hosp ▲○	Gen	NPAssn	120	84	20	701	5 732
St Mary of the Plains Hospital▲	Gen	Church	40	30	10	259	2 452
West Texas Hospital▲○	Gen	Corp	72	60	24	1 063	4 584
Lufkin 9 567—Angelina							
Angelina County Hospital	Gen	County	66	37	14	785	3 905
Memorial Hospital▲	Gen	NPAssn	102		20	Estab	1949
Luling 4 437—Caldwell							
Luling Hospital	Gen	Part	20	9	7	14	718
Marlin 6,542—Falls							
Buie-Allen Hospital	Gen	Indiv	45	6	5	105	[illegible]
Torbett Clinic and Hospital▲	Gen	Corp	75	40	10	183	[illegible]
Marshall 18 410—Harrison							
Kahn Memorial Hospital	Gen	NPAssn	75	[illegible]	20	[illegible]	[illegible]
Texas and Pacific Railway Employees Hospital	Indus	NPAssn	105	72			2 072

Key to symbols and abbreviations is on page 38

TEXAS—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Mason, 1,535—Mason							
Mason Memorial Hospital	Gen	NPAssn	10		4	Estab	1949
Matador, 1,376—Motley							
Traweek Hospital	Gen	Indiv	16	9	4	76	630
Mathis, 1,950—San Patricio							
Mathis Hospital	Gen	Indiv	16	7	4		569
McAllen, 11,877—Hidalgo							
McAllen Municipal Hospital	Gen	City	47	40	18	608	2,428
McKinney, 8,555—Collin							
City County Hospital	Gen	CyCo	85	41	22	471	2,255
Veterans Admin Hospital+▲	Gen	Vet	619	529			5,472
Melvin, 500—McCulloch							
McCulloch Concho Cooperative Hospital	Gen	NPAssn	11	3	5	59	298
Memphis, 3,869—Hall							
Goodall Hospital	Gen	Indiv	18	4	6	129	1,019
Odom Dryden Clinic Hospital	Gen	Part	17	8	7	88	877
Mercedes, 7,624—Hidalgo							
Mercedes General Hospital	Gen	NPAssn	19	11	6	217	881
Meridian, 1,016—Bosque							
Holt Hospital and Clinic	Gen	Indiv	22	8	4	108	807
Merkel, 2,005—Taylor							
Sadler Clinic Hospital	Gen	Indiv	20	10	6	132	1,040
Mexia, 6,410—Limestone							
Brown Hospital	Gen	Part	20	11	5	115	742
Midland, 9,352—Midland							
Western Clinic Hospital	Gen	Part	30	23	10	404	1,862
Mineola, 3,223—Wood							
Mineola Hospital Clinic	Gen	Indiv	15	5	4	121	509
Mineral Wells, 6,303—Palo Pinto							
Nazareth Hospital▲	Gen	Church	30	16	10	216	1,380
Mission, 5,982—Hidalgo							
Weaver H Baker Memorial Tuberculosis Sanatorium	TB	State	234	146			357
Monahans, 3,944—Ward							
Bell Clinic Hospital	Gen	Indiv	18	6	5	58	638
Turney Hospital	Gen	Indiv	25	14	8	441	1,007
Mount Pleasant, 4,528—Titus							
Taylor Hospital and Clinic	Gen	Part	10	2	3	79	395
Mount Vernon, 1,443—Franklin							
Franklin County Hospital	Gen	County	20	8	4	65	705
Muleshoe, 1,327—Bailey							
Green Hospital and Clinic	Gen	Part	18	5	6	165	648
Nacogdoches, 7,538—Nacogdoches							
City Memorial Hospital	Gen	City	62	49	13	569	3,489
Naples, 821—Morris							
David Granberry Memorial Hospital	Gen	Corp	28	4	7	59	380
Navasota, 6,138—Grimes							
Brazos Valley Sanitarium	Gen	NPAssn	30	14	9	201	1,365
New Braunfels, 6,976—Comal							
Comal Sanitarium	Gen	Part	50	10	4	51	702
New Braunfels Hospital	Gen	Part	22	12	8	185	930
New Gulf,—Wharton							
Texas Gulf Sulphur Company Hospital	Gen	NPAssn	20	7	5	57	602
Newton, 1,400—Newton							
Newton County Memorial Hospital	Gen	County	27		6	Estab	1949
Nocona, 2,605—Montague							
Major Clinic Hospital	Gen	Part	12	11	4	91	824
Odessa, 9,573—Ector							
Ector County Hospital	Gen	County	100		35	Estab	1949
Hendlee Hospital	Gen	Indiv	25	13	10	187	1,252
Olney, 3,497—Young							
Hamilton Hospital	Gen	City	38	16	10	236	2,255
Orange, 7,472—Orange							
Frances Ann Lutcher Hosp	Gen	Corp	35	27	15	270	2,535
Orange City Hospital	Gen	City	85	51	21	615	4,393
Overton, 2,313—Rusk							
Overton Memorial Hospital	Gen	City	23	9	6	120	865
Rocky Mount Hospital	Ven	State	165	97			3,837
Ozona, 1,200—Crockett							
Ozona Hospital	Gen	Indiv	12		4	Estab	1950
Paducah, 2,677—Cottle							
W Q Richards Memorial Hospital	Gen	County	22	9	8	206	798
Palacios, 2,288—Matagorda							
Bayview General Hospital	Gen	Indiv	35	21	6	84	637
Palestine, 12,144—Anderson							
Hunter Hunter and Kay Clinic Hospital	Gen	Part	7	4	4	100	383
Missouri Pacific Lines Employees' Hospital	Indus	NPAssn	75	51			1,378
Palestine Sanitarium	Gen	Corp	28	15	8	101	950
Pampa, 12,895—Gray							
Highland General Hospital	Gen	County	110		24	Estab	1950
Worley Hospital	Gen	Part	48	36	14		3,840
Paris, 18,678—Lamar							
Geo Griffiths Memorial Hospital for Children	Unit of Sanitarium of Paris						
Lamar County Hospital	Gen	County	43	21	7	115	849
St Joseph's Hospital	Gen	Church	60	50	14	504	2,591
Sanitarium of Paris	Gen	Corp	93	65	12	204	2,702
Pasadena, 3,436—Harris							
Medical Center Hospital	Gen	Corp	17	7	10	477	760
Pasadena Hospital and Clinic	Gen	Corp	23	18	10	49	1,672
Pearsall, 3,104—Frio							
Bannister Clinic Hospital	Gen	Indiv	15	1	4	40	302
Pecos, 4,855—Reeves							
Camp and Camp Hospital	Gen	Indiv	17	7	7	266	533

TEXAS—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Perryton, 2,325—Ochiltree							
Perryton Hospital	Gen	Indiv	18	11	6	171	1,245
Sanford Hospital and Clinic	Gen	Part	35	10	8	104	762
Phillips, 4,000—Hutchinson							
Phillips Medical Center	Indus	NPAssn	12		Reorganized		
Pittsburg, 2,916—Camp							
Pittsburg Medical and Surgical Hospital	Gen	NPAssn	32	15	10	259	1,421
Plainview, 8,263—Hale							
Plainview Sanitarium and Clinic▲	Gen	Part	140	65	17	447	3,505
Pleasanton, 2,074—Atascosa							
Ogden Hospital	Gen	Indiv	10	4	3	75	415
Port Arthur, 46,140—Jefferson							
St Mary's Hospital, Gates Memorial▲○	Gen	Church	150	110	35	1 053	7,354
Poteet, 2,315—Atascosa							
Shotts Memorial Hospital	Gen	Indiv	13	5	4	60	856
Prairie View (Hempstead P O),140—Waller							
Prairie View University Hospital○	Gen	State	52	11	4	14	543
Premont, 1,080—Jim Wells							
Premont Hospital	Gen	Part	10		4	Estab	1949
Quanah, 3,767—Hardeman							
Memorial Hospital	Gen	County	56	30	8	297	1,091
Randolph Field,—Bexar							
Station Hospital▲	Gen	USAF	323	39		1	2,063
Ranger, 4,553—Eastland							
Ranger General Hospital	Gen	CyCo	37	14	5	178	1,323
West Texas Hospital	Gen	Corp	18	12	4	86	636
Raymondville, 4,050—Willacy							
Raymondville Memorial Hosp	Gen	NPAssn	21	13	8	226	1,151
Refugio, 4,077—Refugio							
Refugio County Hospital	Gen	Church	34	26	8	252	1,150
Richmond, 2,026—Fort Bend							
Polly Ryon Memorial Hosp	Gen	NPAssn	51		9	Estab	1949
Rising Star, 1,195—Eastland							
Rising Star Hospital	Gen	Indiv	25	4	5	20	105
Robstown, 6,780—Nueces							
Robstown Hospital	Gen	NPAssn	16	8	6	184	1,038
Roby, 904—Fisher							
Fisher County Memorial Hospital	Gen	NPAssn	20	8	4	38	706
Rockport, 1,729—Aransas							
Rockport Hospital Clinic	Gen	Indiv	8		8	Estab	1949
Roscoe, 1,166—Nolan							
Young Hospital	Gen	Part	25	13	7	137	1,121
Rosenberg, 3,457—Fort Bend							
Rosenberg Hospital	Gen	Indiv	26	8	4	119	641
Rotan, 2,029—Fisher							
Callan Hospital	Gen	Part	52	23	10	215	2,410
Rusk, 5,699—Cherokee							
Rusk Memorial Hosp	Gen	City	32		11	Estab	1949
Rusk State Hospital	Ment	State	2,414	2,495			1,225
San Angelo, 25,802—Tom Green							
Clinic Hospital	Gen	Part	56	38	15	515	2,593
St John's Hospital	Gen	Church	40	30	10	253	2 131
Shannon West Texas Memorial Hospital▲○	Gen	NPAssn	153	129	23	666	5,947
Station Hospital	Gen	USAF	50	16	8	178	1,106
San Antonio, 253,854—Bexar							
Baptist Memorial Hosp ★+▲○	Gen	Church	226	190	40	2,477	12,074
Brooke General Hospital★+▲	Gen	Army	1,000	1,461	50	2 000	19 284
Central Clinic Hospital	Gen	Indiv	10	5	4	55	234
Good Samaritan Hospital	Gen	Indiv	50	6	20	79	342
Grace Lutheran Sanatorium	TB	Church	51	39			90
Medical Arts Hospital	Gen	Corp	29	20	5	34	1 602
Mission Medical Center	Ven	State	250	176			6 438
Nix Memorial Hospital★▲	Gen	Corp	159	137	40	1,706	7,480
Robert B Green Memorial Hospital★	Gen	County	170	116	26	496	1,537
Saenz Clinic and Hospital	Gen	Indiv	13	5	6	271	520
San Antonio State Hospital○	Ment	State	2,757	2 802			1,130
Santa Rosa Hospital★+▲○	Gen	Church	325	296	50	2,537	14,220
Station Hospital▲	Gen	USAF	475	320	20	357	9 673
Woodmen of the World Memorial Hospital▲	TB	NPAssn	150	93			126
Sanatorium, 1,475—Tom Green							
State Tuberculosis Sanat▲	TB	State	932	782			1,504
San Augustine, 1,516—San Augustine							
San Augustine Memorial Hospital	Gen	City	24		6	Estab	1949
San Benito, 9,501—Cameron							
Dolly Vinsant Memorial Hospital	Gen	NPAssn	42		12	Estab	1949
San Marcos, 6,006—Hays							
Memorial Hospital	Gen	NPAssn	39	9	11	189	733
Santa Anna, 1,661—Coleman							
Sealy Hospital	Gen	Part	15	5	3	46	368
Seagraves, 3,225—Gaines							
Seagraves Clinic Hospital	Gen	Part	15	5	4	45	537
Sealy, 2,500—Austin							
Sealy Hospital	Gen	Indiv	10	4	4	60	446
Seguin, 7,006—Guadalupe							
Seguin Hospital	Gen	Part	21	14	12	530	1,075
Seminole, 1,761—Gaines							
Gaines Clinic and Hosp	Gen	County	15	12	6	150	800
Seminole General Hospital Clinic	Gen	Indiv	30	5	9	46	1,625
Seymour, 3,328—Baylor							
Baylor County Hospital	Gen	County	29	16	7	140	1 015

Key to symbols and abbreviations is on page 38

TEXAS—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Shamrock 3,123—Wheeler							
Shamrock General Hospital	Gen	City	25	11	6	140	1 034
Sherman 17,156—Grayson							
St Vincent s Hospital▲	Gen	Church	77	62	15	377	2 759
Wilson N Jones Memorial Hospital▲	Gen	NPAssn	72	62	12	366	3 090
Shiner 1,520—Lavaca							
Dr Wagner s Hospital	Gen	Indiv	18	12	4	162	578
Sinton 3 770—San Patricio							
Sinton Hospital	Gen	Part	26	12	8	171	1 269
Slaton 3,584—Lubbock							
Mercy Hospital	Gen	Church	50	15	10	282	2,000
Spearman 1 105—Hansford							
Hansford Hospital	Gen	NPAssn	16	5	4	28	301
Spur 2,136—Dickens							
Nichols General Hospital	Gen	Indiv	20	20	7	85	840
Stamford, 4,810—Jones							
Stamford Sanitarium	Gen	Part	50	33	15	295	2,502
Stephenville 4 768—Erath							
Stephenville Hosp and Clinic	Gen	Part	50	31	10	227	2,047
Sugar Land 2 400—Fort Bend							
Laura Eldridge Hospital	Gen	NPAssn	30	31	4	255	1 071
Sulphur Springs 6 742—Hopkins							
Bruce Clinic Hospital	Gen	Indiv	10	No data supplied			
Hopkins County Memorial Hospital	Gen	County	38		8	Estab 1949	
McConnell Hospital	Gen	Indiv	16	8	5	110	661
Sweetwater 10 367—Nolan							
Sweetwater Municipal Hosp	Gen	City	58	40	6	401	2,935
Tahoka 2 129—Lynn							
Tahoka Hospital and Clinic	Gen	Indiv	15	5	4	55	379
Taylor 7 875—Williamson							
Dickey Clinic-Hospital	Gen	Indiv	13	6	4	252	512
Johns Clinic and Hospital	Gen	Indiv	30	28	6	252	1,285
Stromberg Clinic and Hosp	Gen	Corp	38	27	8	173	1 081
Swanson Clinic and Hosp	Gen	Corp	29	2	7	17	162
Temple 15,344—Bell							
Gulf Colorado and Santa Fe Hospital▲	Indus	NPAssn	135	71			3,808
Kings Daughters Hosp ★▲	Gen	NPAssn	110	56	16	377	2 565
Scott and White Hosp ★+▲○	Gen	Corp	236	157	16	285	6,931
Veterans Admin Center+▲	Gen	Vet	745	681			3,576
Terrell 10 481—Kaufman							
Alexander Hospital	Gen	Indiv	25	15	6	69	751
Friddell Hospital	Gen	Indiv	24	4	4	76	473
Holton-Johnston Clinic Hosp	Gen	Part	16	12	7	150	566
Lane Clinic-Hospital	Gen	Indiv	10	3	8	28	170
Terrell State Hospital	Ment	State	1 874	2 480			430
Texarkana 17 019—Bowie							
Federal Correctional Institution	Inst	USPHS	84	6			420
Station Hospital	Gen	Army	10	2			78
Texarkana Hospital	Gen	NPAssn	50	40	8	473	2 060
Texas City 5 748—Galveston							
Danforth Memorial Hosp	Gen	Part	30	24	16	430	1,585
Twidwell Schmidt Hosp	Gen	Part	12	4	6	172	647
Timpson 1 494—Shelby							
Timpson Clinic Hospital	Gen	Indiv	10		8	Estab 1949	
Three Rivers 1 837—Live Oak							
Gipson Hospital	Gen	Indiv	12	8	4		333
Trinity 2,217—Trinity							
Trinity Memorial Hospital	Gen	NPAssn	17		8	Estab 1949	
Tyler 28,279—Smith							
Medical and Surgical Clinic Hospital	Gen	Part	15	14	8	279	1,188
Mother Frances Hosp ▲	Gen	Church	118	66	22	855	3 939
Uvalde 6 679—Uvalde							
Memorial Hospital	Gen	County	40		14	Estab 1949	
Vernon 9,277—Wilbarger							
Christ the King Hospital	Gen	Church	27	12	5	126	1 061
Shipman Clinic Hospital	Gen	Indiv	12	10	3	45	518
Vernon Hospital	Gen	Part	24	18	10	319	1 511
Victoria 11,566—Victoria							
DeTar Memorial Hospital	Gen	Indiv	38	25	10	450	2 069
Victoria Hospital	Gen	Indiv	27	16	13	248	1 455
Waco 55 982—McLennan							
Crippled Children s Hosp	Unit of Providence Hospital						
Hillcrest Memorial Hosp ▲○	Gen	Church	148	120	44	1 736	7 309
Providence Hospital▲○	Gen	Church	160	104	25	826	6 044
Veterans Admin Hosp +▲,	Ment	Vet	2,040	1 934			1,332
Waxahachie, 8 655—Ellis							
Waxahachie Sanitarium▲	Gen	NPAssn	47	22	9	405	1 583
Weatherford 5,924—Parker							
Medical and Surgical Clinic Hospital	Gen	Part	16	11	9	180	859
Parker County Hospital	Gen	County	23	10	4	114	1 483
Weimar 1,353—Colorado							
Youens Hospital	Gen	Part	23		5	Estab 1949	
Wellington 3,308—Collingsworth							
St Joseph s Hospital	Gen	Church	25	17	6	217	1,397
Weslaco 6,883—Hidalgo							
McCalip-Ivy Hospital	Gen	Part	32	16	7	89	1 197
Wharton 4 386—Wharton							
Caney Valley Hospital	Gen	Part	35	20	10	402	1,622
Rugeley and Blasingame Clinic Hosptal	Gen	Corp	32	19	6	158	1,894
Wheeler 848—Wheeler							
Wheeler Hospital	Gen	Part	24	4	6	122	950
Whitney 824—Hill							
Whitney Memorial Hosp	Gen	NPAssn	8	4	4	49	293
Wichita Falls 45 112—Wichita							
Bethania Hospital▲	Gen	Church	70	48	16	607	3,220
Wichita Falls Clinic-Hospital★+▲	Gen	Part	102	99	15	361	5 192
Wichita Falls State Hosp	Ment	State	2,479	2,500			1 156
Wichita General Hosp ▲○	Gen	CyCo	121	80	25	953	4 791
Wills Point 1,976—Van Zandt							
Baker Clinic Hospital	Gen	Indiv	10	5	3	77	[illegible]
Winters, 2,335—Runnels							
Winters Municipal Hosp	Gen	City	16	9	4	95	700
Wolfe City 1,339—Hunt							
Wolfe City Community Hosptal	Gen	NPAssn	25		4		
Yoakum 4 733—Lavaca							
Huth Memorial Hospital	Gen	Church	30	30	10	300	1 610

Related Institutions

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Alpine 3 866—Brewster							
Lockhart Clinic Hospital	Gen	Indiv	15	6	6	151	667
Arlington 4,240—Tarrant							
Knights Templar Hosp	Inst	NPAssn	27	20			153
Woodward Hospital	ENT	Indiv	10	5			1 835
Athens 4 765—Henderson							
Henderson County Memorial Hospital	Gen	County	38	11	8	115	547
Austin, 87 930—Travis							
Austin State School	MeDe	State	2,001	1,905			265
Oak Ridge Sanitarium	N&M	Indiv	25	14			168
Beaumont 59 061—Jefferson							
Beaumont Infirmary	Mat	Part	18	10	20	698	744
Palms Hospital	Conv	Indiv	39	36			170
Bronte 754—Coke							
Karen Gayl Hospital	Gen	Indiv	11	5	3	80	517
Buda 400—Hays							
Buda Clinic and Hospital	Gen	Indiv	6	1	4	69	100
Commerce 4 699—Hunt							
Seyler Clinic and Hospital	Gen	Indiv	12	1	4	49	150
Cooper 2,537—Delta							
Janes Hospital	Gen	Part	10	9	6	195	315
Crane 1 420—Crane							
Crane County Memorial Hospital	Gen	County	17	6	4	105	458
Dallas 294 734—Dallas							
Chester Clinic-Hospital	Gen	Indiv	6				
Health Center of Southern Methodist University	Inst	Church	35	2			639
Love-Youngblood Eye and Ear Hospital	ENT	Part	4	3			68
Dr Stell s Eye Ear, Nose and Throat Clinic-Hospital	ENT	Indiv	5	4			325
Wilkinson Hospital and Clinic	ENT	Indiv	5	2			100
Eastland 3,849—Eastland							
Eastland Hospital	Gen	Indiv	12	No data supplied			
El Paso 96,810—El Paso							
Mesa Sanatorium	TB	Indiv	22	17			46
Fort Worth 177 662—Tarrant							
Elmwood Sanatorium	TB	CyCo	76	69			88
Harrison Clinic Hospital	Gen	Indiv	40	22	6	64	1 076
Howard Sanitarium	N&M	Indiv	18	14			153
West Texas Maternity Hosp	Mat	NPAssn	35	19	1	79	79
Hallettsville 1 581—Lavaca							
Dufner Hospital	Gen	Indiv	10	4	3	40	100
Harlingen 13 306—Cameron							
Medical Arts Hospital	Gen	Corp	13	6	6	185	500
Hearne 3 511—Robertson							
Searcy Fleming Clinic and Hospital	Gen	Part	6		4	Estab 1950	
Hico 1,241—Hamilton							
Hico Hospital and Clinic	Gen	Corp	15	12	3	62	841
Hondo 2,500—Medina							
Medina Hospital	Gen	Part	15	5	5	187	607
Houston 384,514—Harris							
Hedgecroft Hosp and Clinic	Orth	NPAssn	50	25			119
Pauline Sterne Wolff Memorial Home	Conv	Corp	20	10			21
Physicians and Surgeons Hospital	Gen	Part	30	9	3		1 032
Huntsville 5,108—Walker							
Huntsville Memorial Hosp	Gen	NPAssn	25	14	6	226	1 060
Texas State Prison Hosp	Inst	State	140	107			1,263
Hutchins 400—Dallas							
City County Convalescent Hospital	Conv	CyCo	130	114			112
Jacksboro, 2 365—Jack							
Mask Clinic and Hospital	Gen	Indiv	5		2	Estab 1949	
Jacksonville 7,213—Cherokee							
Cherokee Nursing Home	Conv	Indiv	10	4			20
Kaufman 2,654—Kaufman							
Shaw Clinic and Hospital	Gen	Indiv	6	2	4	31	122
Lamesa, 6 038—Dawson							
Standifer Hospital	Gen	Indiv	5	1	4	63	[illegible]
Livingston 1,851—Polk							
Corso Obstetrical Hospital	Mat	Indiv	6	1	4	80	80
Longview 13 758—Gregg							
Camp Normal Industrial Hospital	Gen	Indiv	8	3	5	95	257
Loraine 700—Mitchell							
Johnson Hospital	Gen	Part	8	5	4	100	[illegible]
Marfa 3,805—Presidio							
Searls Hospital	Gen	Indiv	12	3	4	24	[illegible]
Marlin 6,542—Falls							
Hunter Clinic Hospital	Gen	Indiv	18	3	2	13	140
Matador 1,376—Motley							
Stanley Clinic Hospital	Gen	Indiv	20	7	7	140	[illegible]

TEXAS—Continued

Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
McCamey, 2,595—Upton							
Cooper Hospital	Gen	Indiv	10	No data supplied			
Memphis, 3,869—Hall							
Clark Hospital	Gen	Indiv	9	3	0	75	409
Moulton, 613—Lavaca							
H J Strieder Hospital	Gen	Indiv	10	2	3	62	112
New Boston, 1,111—Bowie							
McGee Hospital	Gen	Indiv	12	3	6	60	464
Pearsall, 3,164—Frio							
Howard Hospital	Gen	Indiv	10	4	3	97	286
Pharr, 4,784—Hidalgo							
Valley Convalescent Center	Conv	Indiv	18	14			155
Ralls, 1,512—Crosby							
L W Spikes Hospital	Gen	Indiv	8	4	4	75	194
Rosebud, 1,512—Falls							
Rosebud Hosp and Clinic	Gen	Indiv	20	13	3	131	812
San Antonio, 253,854—Bexar							
General Clinic Hospital	Gen	Indiv	11	3	4	92	150
Laurelwood Sanatorium	Conv	Indiv	50			Estab	1949
Salvation Army Home and Hospital	Mat	Church	35	17	12	53	70
Smithville, 3,100—Bastrop							
Hoch Clinic Hospital	Gen	Indiv	10	3	5	48	125
Sulphur Springs, 6,742—Hopkins							
Worsham Hospital	Gen	Indiv	12	4	8	231	400
Tahoka, 2,129—Lynn							
F E Scale Clinic Hospital	Gen	Indiv	6	2	3	19	300
Teague, 3,157—Freestone							
City Hospital	Gen	Indiv	14	5	6	79	393
Texon, 1,200—Reagan							
Big Lake Oil Company Hospital	Gen	NPAssn	9	1	4	3	60
Tulia, 2,055—Swisher							
Swisher County Hospital	Gen	County	15	9	6	151	714
Waco, 55,982—McLennan							
Waco State Home Hospital	Inst	State	20	5			433
Wichita Falls, 45,112—Wichita							
Adams and Adams Eye, Ear, Nose and Throat Clinic Hospital	EENT	Part	10	1			507

UTAH

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
American Fork, 3,333—Utah							
American Fork Community Hospital	Gen	City	20	13	15	329	730
Bingham Canyon, 2,831—Salt Lake							
Bingham Canyon Hospital▲	Gen	Indiv	40	31	8	64	894
Brigham, 5,641—Box Elder							
Cooley Memorial Hospital	Gen	Indiv	35	15	20	450	1,020
Cedar City, 4,695—Iron							
Iron County Hospital	Gen	County	70	24	25	455	1,428
Coalville, 949—Summit							
Summit County Hospital	Gen	County	14	9	6	107	414
Fort Duchesne 104—Uintah							
Uintah and Ouray Agency Indian Hospital	Gen	IA	24	10	6	45	347
Heber 2,748—Wasatch							
Heber Hospital	Gen	Part	14	9	10	183	550
Lehi, 2,723—Utah							
Lehi City Hospital	Gen	City	15	6	8	155	536
Logan, 11,868—Cache							
Latter Day Saints Hosp ▲○	Gen	Church	65	47	20	950	3,348
Moab, 1,034—Grand							
Grand County Public Hosp	Gen	County	16	2	6	62	292
Mount Pleasant, 2,382—Sanpete							
Sanpete Latter Day Saints Hospital	Gen	Church	32		13	Estab	1949
Ogden 43,688—Weber							
St Benedict's Hosp ★▲○	Gen	Church	165	118	32	1,084	5,330
Thomas D Dee Memorial Hospital★+▲○	Gen	Church	251	149	70	2,047	8,222
Utah State Tuberculosis Sanatorium▲	TB	State	100	65			119
Park City 3,739—Summit							
Park City Miners' Hospital	Gen	NPAssn	17	7	5	67	431
Payson, 3,591—Utah							
Payson City Hospital	Gen	NPAssn	35	25	20	560	1,494
Price, 5,214—Carbon							
Price City Hospital	Gen	City	54	39	12	632	2 065
Provo, 18,071—Utah							
Utah State Hospital	Ment	State	1,270	1,193			443
Utah Valley Hospital▲	Gen	NPAssn	72	50	28	1,435	3,747
Richfield, 3,584—Sevier							
Sevier Valley Hospital	Gen	Indiv	27	13	10	310	993
Roosevelt, 1,204—Duchesne							
Roosevelt Hospital	Gen	Church	21	No data supplied			
St George, 3,591—Washington							
D A McGregor Hospital	Gen	NPAssn	20	9	8	234	599
Salina, 1,616—Sevier							
Salina Hospital	Gen	City	16	7	6	202	505
Salt Lake City, 149,934—Salt Lake							
Dr W H Groves Latter Day Saints Hospital★+▲○	Gen	Church	359	303	116	3,906	14,796
Holy Cross Hospital★+▲○	Gen	Church	193	138	30	2,258	7,302
Primary Children's Hosp	Chil	Church	33	33			104
St Mark's Hospital★+▲○	Gen	Church	214	182	30	1,276	7,649
Salt Lake County General Hospital★+▲○	Gen	County	231	152	22	471	3,802
Shriners Hospital for Crippled Children	Orth	NPAssn	20	20			63
Veterans Admin Hosp +▲	Gen	Vet	204	178			3,147

UTAH—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Spanish Fork, 4,167—Utah							
Hughes Memorial Hospital	Gen	Indiv	13	7	5	224	574
Tremonton, 1,443—Box Elder							
Valley Hospital	Gen	NPAssn	20	12	10	152	1,068
Related Institutions							
American Fork, 3,333—Utah							
Utah State Training School	MeDe	State	650	682			62
Milford, 1,393—Beaver							
Milford Hospital	Gen	Indiv	9	5	5	74	235
Murray, 5,740—Salt Lake							
Cottonwood Stake Maternity Hospital	Mat	Church	23	10	23	712	727

VERMONT

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Barre, 10,909—Washington							
Barre City Hospital▲○	Gen	NPAssn	75	53	18	585	3,112
Washington County Sanat	TB	State	47	40			60
Bellows Falls, 4,236—Windham							
Rockingham Hospital	Gen	NPAssn	45	27	10	213	1,271
Bennington, 7,628—Bennington							
Henry W Putnam Memorial Hospital▲	Gen	NPAssn	90	71	20	509	2,716
Brattleboro, 9,622—Windham							
Brattleboro Memorial Hosp ▲	Gen	NPAssn	75	86	22	462	2 095
Brattleboro Retreat	Ment	NPAssn	750	691			261
Burlington, 27,686—Chittenden							
Bishop DeGoesbriand Hospital★+▲○	Gen	Church	200	115	40	602	4,251
Mary Fletcher Hosp ★+▲○	Gen	NPAssn	193	192	37	1,019	6 063
Hardwick, 1,607—Caledonia							
Hardwick Hospital	Gen	NPAssn	16	7	6	119	305
Jeffersonville, 287—Lamoille							
Roger W Mann Hospital	Gen	Indiv	15	6	6	83	211
Middlebury, 2,123—Addison							
Porter Hospital▲	Gen	NPAssn	45	24	10	290	1,850
Montpelier, 8,006—Washington							
Heaton Hospital▲○	Gen	NPAssn	70	47	20	404	3 883
Morrisville, 1,967—Lamoille							
Copley Hospital	Gen	NPAssn	30	20	9	169	1,046
Newport, 4,902—Orleans							
Broadview General Hospital	Gen	Indiv	26	17	11	184	769
Orleans County Memorial Hospital▲	Gen	NPAssn	40	21	10	222	853
Pittsford 576—Rutland							
Vermont Sanatorium	TB	State	75	75			145
Proctor, 2,184—Rutland							
Proctor Hospital	Gen	NPAssn	35	19	7	131	758
Randolph, 1,988—Orange							
Gifford Memorial Hosp ▲	Gen	NPAssn	63	39	10	194	1 640
Rutland, 17,082—Rutland							
Rutland Hospital▲○	Gen	NPAssn	140	105	20	770	4,762
St Albans, 8,037—Franklin							
St Albans Hospital▲	Gen	NPAssn	61	51	20	546	3 103
St Johnsbury, 7,437—Caledonia							
Brightlook Hospital▲○	Gen	NPAssn	55	32	12	265	1,603
St Johnsbury Hospital	Gen	Church	30	19	9	189	781
Springfield 5,182—Windsor							
Springfield Hospital▲	Gen	NPAssn	50	45	16	402	1 820
Waterbury, 3,074—Washington							
Vermont State Hospital+	Ment	State	982	1 211			526
White River Junction 2,271—Windsor							
Veterans Admin Center+▲	Gen	Vet	250	214			4 403
Windsor, 3,402—Windsor							
Windsor Hospital	Gen	NPAssn	24	9	10	170	477
Winooski, 6,036—Chittenden							
Fanny Allen Hospital▲○	Gen	Church	76	77	14	350	3,186
Related Institutions							
Brandon, 2,979—Rutland							
Brandon State School	MeDe	State	453	380			36
Pittsford, 576—Rutland							
Caverly Preventorium	TB	NPAssn	44	No data supplied			
Windsor, 3,402—Windsor							
Vermont State Prison	Inst	State	12	3			113

VIRGINIA

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Abingdon, 3,158—Washington							
Johnston Memorial Hosp ▲○	Gen	NPAssn	80	82	10	250	2,076
Alexandria, 33,523—Arlington							
Alexandria Hospital★+▲○	Gen	NPAssn	170	124	60	1,930	6,239
Circle Terrace Hospital	Gen	Corp	48	28			781
Altavista, 2,919—Campbell							
Piedmont General Hospital	Gen	Part	30	9	6	130	663
Arlington, 57,040—Arlington							
Anderson Orthopedic Clinic and Hospital	Orth	NPAssn	17	17			250
Arlington Hospital★+▲	Gen	NPAssn	115	89	28	1 217	5,518
Bedford, 3,973—Bedford							
John Russell Hospital	Gen	Corp	21	16	10	202	1 191
Bristol, 9,768—Washington							
Fort Shelby Hospital	Gen	Indiv	18	10	6	394	979
Kings Mountain Memorial Hospital▲	Gen	NPAssn	48	49	10	582	3 590
Burkeville, 658—Nottoway							
Piedmont Sanatorium○	TB	State	209	257			200
Camp Lee, 12—Prince George							
Station Hospital	Gen	Army	200	126	13	453	4 019

Key to symbols and abbreviations is on page 38

VIRGINIA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Catawba Sanatorium 100—Roanoke							
Catawba Sanatorium○	TB	State	360	309			362
Charlottesville, 19 400—Albemarle							
Blue Ridge Sanatorium▲○	TB	State	370	318			403
Martha Jefferson Hospital and Sanitarium▲	Gen	NPAssn	50	45	10	421	2,453
University of Virginia Hospital★+▲○	Gen	State	490	413	61	1 687	14,873
Christiansburg 2,299—Montgomery							
New Altamont Hospital▲	Gen	Corp	25	24	8	466	1 882
Clifton Forge 6 461—Alleghany							
Chesapeake and Ohio Hospital+▲○	Gen	NPAssn	147	129	20	383	6,813
Clintwood 1 106—Dickenson							
Dickenson County Hospital	Gen	Indiv	30	8	8	229	955
Coeburn 764—Wise							
Coeburn Hospital	Gen	Part	26	14	6	198	755
Covington 6 300—Alleghany							
Alleghany Memorial Hospital	Gen	CyCo	33	15	11	255	964
Danville 32 749—Pittsylvania							
Hilltop Sanatorium	TB	NPAssn	37	29			54
Memorial Hospital▲○	Gen	NPAssn	170	147	26	1 108	8,234
Farmville 3 475—Prince Edward							
Southside Community Hospital▲	Gen	NPAssn	62	50	15	474	2 093
Fort Belvoir —Fairfax							
Station Hospital	Gen	Army	350	204	32	540	4,557
Fort Eustis —Warwick							
Station Hospital	Gen	Army	125	50	12	144	3 017
Fort Monroe 1 265—Elizabeth City							
Station Hospital▲	Gen	Army	96	33	24	336	1 453
Franklin 3 466—Southampton							
Raiford Memorial Hosp ▲	Gen	NPAssn	67	39	15	262	1,908
Fredericksburg 10 066—Spotsylvania							
Mary Washington Hosp	Gen	NPAssn	92	57	20	780	3 390
Front Royal 3,831—Warren							
Front Royal Community Hospital	Gen	NPAssn	22	17	10	363	1 514
Gordonsville 508—Orange							
Gordonsville Community Hospital	Gen	Indiv	20	14	6	77	662
Grundy 1 476—Buchanan							
Grundy Hospital	Gen	Corp	65	49	10	312	2 308
Hampton 5 898—Elizabeth City							
Dixie Hospital▲○	Gen	NPAssn	140	57	30	710	3 115
Harrisonburg 8 768—Rockingham							
Rockingham Memorial Hospital▲○	Gen	NPAssn	151	128	30	1 166	5,996
Hopewell 8 679—Prince George							
John Randolph Hospital	Gen	NPAssn	40	29	16	290	1 647
Hot Springs 1 000—Bath							
Community House Hospital	Gen	NPAssn	24	6	9	99	312
Kecoughtan 1 900—Elizabeth City							
Veterans Admin Center▲	Gen	Vet	604	421			8 161
Langley Field —Elizabeth City							
Station Hospital▲	Gen	USAF	100	50			1 849
Lebanon, 622—Russell							
Lebanon General Hospital	Gen	Indiv	25	16	8	191	1 055
Leesburg 1,698—Loudoun							
Loudoun County Hospital	Gen	NPAssn	25	21	12	317	1,596
Lexington 3 914—Rockridge							
Jackson Memorial Hosp	Gen	NPAssn	57	40	15	468	2,817
Luray 1,511—Page							
Page Memorial Hospital	Gen	County	30	10	5	184	909
Lynchburg 44 541—Campbell							
Guggenheimer Maternity Hospital	Unit of Marshall Lodge Memorial Hospital						
Lynchburg General Hosp ▲○	Gen	City	150	101	27	738	4,331
Marshall Lodge Memorial Hospital▲	Gen	NPAssn	100	75	30	522	3 663
Virginia Baptist Hospital▲○	Gen	Church	100	77	24	866	3,599
Marion 5,177—Smyth							
Lee Memorial Hospital	Gen	NPAssn	72	52	13	256	2,767
Southwestern State Hosp ▲	Ment	State	1,287	1,311			455
Martinsville 10 080—Henry							
Martinsville General Hosp	Gen	NPAssn	84	64	26	714	3 600
Nassawadox 250—Northampton							
Northampton Accomac Memorial Hospital○	Gen	NPAssn	73	54	18	427	2 469
Newport News 37 067—Warwick							
Elizabeth Buxton Hosp.▲○	Gen	Indiv	146	98	35	1 027	5 294
Riverside Hospital★+▲○	Gen	NPAssn	190	121	35	1,203	6 731
Whittaker Memorial Hosp.▲	Gen	NPAssn	57	31	20	399	1 322
Norfolk 144 332—Norfolk							
DePaul Hospital★+▲○	Gen	Church	259	186	48	1,551	8,539
Grandy Sanatorium	TB	City	152	140			139
Hampton Roads Medical Center	Ven	State	180	66			3,583
Leigh Memorial Hospital▲	Gen	NPAssn	106	93	40	1,205	5 418
McCoy Stokes Hospital	ENT	Part	10	3			417
Norfolk Community Hosp.▲	Gen	NPAssn	130	65	28	745	3 723
Norfolk General Hosp ★+▲○	Gen	NPAssn	340	243	55	1 364	9 665
U S Marine Hosp ★▲	Gen	USPHS	360	243			4 752
U S Naval Air Station Dispensary	Gen	Navy	113	27			1 899
Norton, 4 006—Wise							
Dr Botts Eye Ear Nose and Throat Hospital	ENT	Indiv	42				
Norton General Hospital	Gen	Indiv	40	21	10	235	1 492
St Mary s Hospital	Gen	Church	45	23	7	138	1,914
Pennington Gap 1 990—Lee							
Lee General Hospital	Gen	Corp	40	29	7	179	1,856

VIRGINIA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Petersburg 30 631—Dinwiddie							
Central State Hospital▲	Ment	State	4 075	3,9[illegible]			[illegible]
Federal Reformatory Hosp	Inst	USPHS	46	13			894
Medical Center Hospital	Unit of Central State Hospital						
Petersburg Hospital▲○	Gen	NPAssn	114	62	19	744	5 151
Petersburg State Colony	MeDe	State	250	248			44
Portsmouth 50 745—Norfolk							
Kings Daughters Hospital▲○	Gen	NPAssn	202	127	45	810	5,261
Maryview Hospital▲○	Gen	Church	150	83	32	792	3 7[illegible]
U S Naval Hospital★+▲	Gen	Navy	1 403	976	74	2,055	14 614
Pulaski 8 792—Pulaski							
Pulaski Hospital▲○	Gen	Corp	80	67	20	490	3 343
Quantico 1 139—Prince William							
U S Naval Hospital	Gen	Navy	235	105	14	346	2 234
Radford 6 990—Montgomery							
Radford Community Hospital▲○	Gen	NPAssn	74	53	20	722	3 713
St. Albans Sanatorium	N&M	Corp	103	80			1,2[illegible]0
Richlands 2,203—Tazewell							
Clinch Valley Clinic Hosp ▲	Gen	Corp	101	75	14	525	5 132
Mattie Williams Hospital	Gen	Indiv	75	42	10	244	2,415
Richmond 193 042—Henrico							
Crippled Children s Hosp +▲	Orth	NPAssn	120	63			250
Dooley Hospital	Unit of Medical College of Virginia Hospital Division						
Grace Hospital▲○	Gen	Corp	90	80	20	604	4 678
Johnston Willis Hosp +▲○	Gen	Corp	225	162	35	1 919	7 615
Medical College of Virginia Hospital Division★+▲○	Gen	State	753	583	115	3 423	17,395
Penitentiary Hospital	Inst	State	50	32			2,459
Pine Camp Hospital▲	TB	City	220	192			197
Retreat for the Sick▲	Gen	NPAssn	105	83	25	937	4 966
Richmond Community Hosp	Gen	NPAssn	35	24	8	317	1,319
St Elizabeth s Hospital+▲○	Gen	Corp	53	51			2,085
St Luke s Hospital▲○	Gen	Corp	87	68	23	922	3 874
St Philip Hospital○	Unit of Medical College of Virginia Hospital Division						
Sheltering Arms Hospital+▲	Gen	NPAssn	84	63	16	346	2,025
Stuart Circle Hospital★▲○	Gen	Corp	114	102	23	653	4 345
Tucker Hospital▲	N&M	Corp	60	55			657
Veterans Admin Hospital+▲	Gen	Vet	1,100	849			6,831
Westbrook Sanatorium	N&M	Corp	140	118			459
Roanoke 69 287—Roanoke							
Burrell Memorial Hospital▲	Gen	NPAssn	60	45	12	497	2 290
Gill Memorial Eye Ear and Throat Hospital+▲	ENT	Indiv	25	11			1,001
Jefferson Hospital★+▲○	Gen	Corp	150	130	30	920	5 036
Lewis-Gale Hospital★+▲○	Gen	Corp	190	141	30	1 118	6,451
Memorial and Crippled Childrens Hospital★▲○	GenOrth	NPAssn	140	114	20	565	4,871
Roanoke City Sanatorium▲	TB	City	49	30			47
Shenandoah Hospital▲	Gen	Corp	63	36	8	331	2 433
Veterans Admin. Hospital+▲	Ment	Vet	2 000	1 853			2 892
Saltville 2 650—Smyth							
Mathieson Hospital	Gen	NPAssn	18	11	5	201	1 085
South Boston 5,252—Halifax							
South Boston Hospital.	Gen	Corp	45	27	10	226	1 822
Staunton 13,337—Augusta							
DeJarnette State Sanatorium	Ment	State	170	146			599
Kings Daughters Hospital▲	Gen	NPAssn	75	55	20	676	3 183
Western State Hospital	Ment	State	2 [illegible]	2 523			954
Stonega 1 650—Wise							
Stonega Hospital	Indus	NPAssn	10	3			111
Stuart 720—Patrick							
Stuart Hospital	Gen	Indiv	23	16	8	169	534
Suffolk 11 343—Nansemond							
Lakeview Hospital▲○	Gen	NPAssn	60	47	15	329	2,115
Virginia Hospital	Gen	NPAssn	13	5	5	95	310
University —Albemarle							
University of Virginia Hosp	See Charlottesville Virginia						
Warrenton 1 651—Fauquier							
Physicians Hospital	Gen	Corp	40	20	12	401	1,511
Waynesboro 7,373—Augusta							
Waynesboro Community Hospital	Gen	NPAssn	40	27	14	453	1 770
Williamsburg 3 942—James City							
Bell Hospital	Gen	Indiv	20	9	5	153	640
Eastern State Hospital▲	Ment	State	1 942	1,837			800
Winchester 12 095—Frederick							
Winchester Memorial Hosp ▲○	Gen	NPAssn	200	164	35	1,243	6,303
Woodstock 1,546—Shenandoah							
Cora Miller Memorial Hosp	Gen	Indiv	33	17	10	151	808
Wytheville 4 653—Wythe							
Chitwood Moore Clinic Hosp	Gen	Part	17	9	8	263	759

Related Institutions

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Bristol 9 768—Washington							
Grigsby s Hospital	Gen	Indiv	16	11	12	225	570
Colony 100—Amherst							
Lynchburg State Colony▲	MeDe	State	1 [illegible]	1,577			273
Medical Center Hospital▲	Unit of Lynchburg State Colony						
Galax, 3 195—Grayson							
Waddell Hospital	Gen	Corp	40	20	9	87	850
Martinsville 10 080—Henry							
St Mary Hospital	Gen	Part	13	6	7	118	332
Richmond 193 042—Henrico							
City Home Hospital	InstGen	City	450	276	20		427
Salem 5 737—Roanoke							
White Cross Hospital	Drug	Part	25	10			410
State Farm 75—Goochland							
State Farm Hospital	Inst	State	120	59			399
Sweet Briar 200—Amherst							
Mary Harley Infirmary	Inst	NPAssn	15	3			151

Key to symbols and abbreviations is on page 38

WASHINGTON

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Aberdeen, 18,846—Grays Harbor							
St Joseph's Hospital▲	Gen	Church	115	103	30	825	4,847
American Lake, 800—Pierce							
Veterans Admin Hospital▲○	Ment	Vet	904	807			366
Anacortes, 5,875—Skagit							
Anacortes Hospital	Gen	Corp	25	15	5	186	954
Auburn, 4,211—King							
Auburn General Hospital	Gen	Corp	45	22	12	378	1,591
Bellingham, 29,314—Whatcom							
St Joseph's Hospital▲○	Gen	Church	112	95	18	1,050	5,020
St Luke's General Hosp ▲○	Gen	NPAssn	75	68	12	545	4,082
Whatcom County Hospital	Gen	State	100	46	8	86	802
Bremerton, 15,134—Kitsap							
Harrison Memorial Hospital▲	Gen	NPAssn	110	60	30	847	3,870
Puget Sound Naval Memorial Hospital	Gen	NPAssn	90	57	30	719	3,506
U S Naval Hospital★▲	Gen	Navy	450	310	17	342	5,391
Burlington, 1,632—Skagit							
Matthews General Hospital	Gen	Indiv	30	10	6	119	864
Centralia, 7,414—Lewis							
Lewis County Hospital	Gen	County	52	35	12	451	2,070
Chehalis 4,857—Lewis							
MacMillan Sanatorium	TB	Counties	52	46			44
St Helen Hospital▲	Gen	Church	40	34	13	443	1,700
Chelan, 1 738—Chelan							
Lake Chelan Community Hospital	Gen	NPAssn	24	11	7	208	701
Chewelah, 1,565—Stevens							
St Joseph's Hospital	Gen	Church	40	23	11	163	1,387
Clarkston, 3,116—Asotin							
Asotin County Hospital	Gen	Corp	24		6	Estab	1949
Colfax, 2 853—Whitman							
St Ignatius Hospital	Gen	Church	68	41	17	445	2,497
Colville, 2,418—Stevens							
Mount Carmel Hospital	*Gen*	*Church*	*45*	*28*	*12*	*231*	*1,960*
Dayton, 3,026—Columbia							
John Brining Memorial Hospital	Gen	Indiv	22	16	4	103	663
Ellensburg, 5,944—Kittitas							
Ellensburg General Hosp ▲	Gen	NPAssn	32	20	10	270	1,166
Morris Sorensen Memorial Hospital	Gen	Indiv	50		7	Estab	1949
Valley General Hospital	Gen	Part	17	*9*	*9*	*218*	*622*
Elma, 1,370—Grays Harbor							
Elma General Hospital	Gen	Part	21	14	6	122	619
Oakhurst Sanatorium	TB	County	110	80			63
Ephrata, 951—Grant							
Columbia Basin Hospital	Gen	Corp	25	18	7	290	1,347
Everett, 30,224—Snohomish							
General Hospital▲○	Gen	NPAssn	85	71	20	1,070	6,668
Providence Hospital▲○	Gen	Church	120	72	30	621	4,145
Fort Lewis,—Pierce							
Madigan General Hosp ★+▲	Gen	Army	1,530	1,023	48	1,370	14,232
Fort Steilacoom, 2 080—Pierce							
Western State Hospital+▲○	Ment	State	2,830	2,693			931
Kirkland, 2,084—King							
Fairfax Sanitarium	N&M	Indiv	50	40			353
Kirkland Hospital	Gen	Indiv	15	8	12	309	852
Lakeview, 200—Pierce							
Mountain View Sanatorium	TB	County	130	95			106
Longview, 12,385—Cowlitz							
Cowlitz General Hospital	Gen	NPAssn	85	70	20	733	4,091
St John's Hospital▲	Gen	Church	75	62	20	860	4,212
Medical Lake, 2,114—Spokane							
Eastern State Hospital+▲	Ment	State	2,204	2,058			522
Monroe, 1,590—Snohomish							
Valley View Hospital	Gen	County	72	58	6	14	513
Mount Vernon, 4,278—Skagit							
Rowley General Hospital	Gen	Indiv	47	32	12	215	1,103
Skagit General Hospital	Gen	NPAssn	30	20	12	174	1,120
Nespelem, 300—Okanogan							
Colville Indian Hospital	Gen	IA	40	17	5	89	833
Newport, 1,174—Pend Oreille							
Newport Community Hosp	Gen	NPAssn	26	12	5	146	1,148
Olympia, 13,254—Thurston							
St Peter's Hospital▲○	Gen	Church	125	81	25	908	4,317
Pasco, 3,913—Franklin							
Our Lady of Lourdes Hosp ▲	Gen	Church	68	47	25	810	3,157
Port Angeles, 9,409—Clallam							
Davidson Hay Hospital	Gen	Indiv	53	37	11	112	1,565
Port Angeles General Hosp	Gen	NPAssn	89	51	18	508	3,022
Port Townsend, 4,683—Jefferson							
St John's Hospital	Gen	Church	85	47	15	279	974
Pullman, 4,417—Whitman							
Finch Memorial Hospital	Gen	State	43	16	7	44	1,447
Puyallup, 7,889—Pierce							
Puyallup General Hospital	Gen	Indiv	28	18	12	426	1,677
Raymond, 4,045—Pacific							
New Riverview Hospital and Clinic	Gen	Part	24	12	8	168	1,219
Renton, 4,488—King							
Renton Hospital	Gen	County	100	73	30	1,222	4,854
Richland, 247—Benton							
Kadlec Hospital▲	Gen	NPAssn	118	71	24	907	5,132
Seattle, 368,302—King							
Ballard General Hospital	Gen	NPAssn	36	40	8	232	1,597
Children's Orthopedic Hospital+▲○	Orth	NPAssn	145	123			2,485
Cobb Hospital	Gen	Indiv	26	16			3,047

WASHINGTON—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Columbus Hospital★▲○	Gen	Church	185	91	38	633	4,252
Doctors Hospital★+▲○	Gen	NPAssn	200	155	44	1,829	8 557
Firland Sanatorium+▲○	TB	County	1,190	937			1,004
Group Health Hospital	Gen	NPAssn	56	35	15	304	2,372
King County Hospital, Unit No 1 (Harborview)★+▲○	Gen	County	575	453	24	872	11,750
King County Hospital, Unit No 2 (Georgetown Branch)▲	Chr	County	270	262			596
Laurel Beach Sanatorium▲	TB	*Part*	*101*	*96*			122
Maynard Hospital▲	Gen	NPAssn	100	83	40	1,858	4,119
Medical and Dental Building Surgery	Surg	Indiv	20	14			3,032
Pinel Foundation Hospital	N&M	NPAssn	24	18			189
Providence Hospital★+▲○	Gen	Church	357	283	77	2,289	12,262
Riverton Hospital for Diseases of the Chest▲	TB	NPAssn	100	84			119
Seattle General Hospital▲	Gen	NPAssn	129	97	33	822	4,722
Station Hospital	*Gen*	*Army*	*200*	*110*	*24*		*3,533*
Swedish Hospital★+▲○	Gen	NPAssn	330	299	74	2,744	13,498
U S Marine Hospital★+▲	Gen	USPHS	515	407	14	258	6 071
U S Naval Air Station Dispensary	Gen	Navy	72	14	10	229	735
University of Washington Infirmary	Inst	State	75	6			759
Virginia Mason Hosp ★+▲○	Gen	NPAssn	208	187	36	1,537	9,712
Washington Memorial Hosp	Gen	NPAssn	16	8			556
Sedro Woolley, 2,954—Skagit							
Memorial Hospital	Gen	NPAssn	37	30	12	251	1,706
Northern State Hosp +▲○	Ment	State	2,244	2,137			627
Selah, 1,130—Yakima							
Central Washington Tuberculosis Hospital	TB	Counties	110			Estab	1950
Shelton, 3,707—Mason							
Shelton General Hospital▲	Gen	NPAssn	50	32	13	271	1,454
Snohomish, 2,794—Snohomish							
Aldercrest Sanatorium	TB	County	60	62			58
Snohomish General Hospital	Gen	Indiv	23	12	12	300	1,041
Snoqualmie Falls, 900—King							
Nelems Memorial Hospital	Gen	Indiv	23	12	6	100	573
Spokane, 122,001—Spokane							
Booth Memorial Hospital	Mat	Church	10	4	16	69	84
Deaconess Hospital★+▲○	Gen	Church	213	173	44	1,949	8,078
Edgecliff Sanatorium▲	TB	County	200	151			161
Sacred Heart Hospital★+▲○	Gen	Church	416	367	60	2,642	17,895
St Luke's Hospital★+▲○	Gen	NPAssn	265	189	26	1,186	7,198
Shriners Hospital for Crippled Children+▲○	Orth	NPAssn	25	25			142
Station Hospital▲	Gen	USAF	144	62			1,933
Steilacoom, 832—*Pierce*							
U S Penitentiary Hosp ▲	Inst	USPHS	94	30			1,116
Sunnyside, 2,368—Yakima							
Valley Memorial Hospital	Gen	NPAssn	40	22	14	525	1,976
Tacoma, *109,408*—Pierce							
Doctors Hospital	Gen	NPAssn	60	45			2,192
Northern Pacific Beneficial Association Hospital▲	Gen	NPAssn	100	72	7	173	3,403
Pierce County Hospital★▲	Gen	CyCo	226	140	20	451	4,393
St Joseph's Hospital★+▲○	Gen	Church	279	205	67	1,672	8,273
Station Hospital	Gen	USAF	50	24			1,094
Tacoma General Hosp ★+▲○	Gen	NPAssn	213	161	70	2,344	8,550
Tacoma Indian Hospital▲	TbGen	IA	336	265			1,494
Tonasket, 643—Okanogan							
St Martin's Hospital	Gen	Church	50	20	10	202	919
Vancouver, 18,788—Clark							
Clark County Hospital	Gen	County	78	56	6	61	1,045
Northern Permanente *Hospital*★+▲	Gen	NPAssn	124	83	16	256	1,864
St Joseph's Hospital▲○	Gen	Church	130	82	40	1,077	4,185
Vancouver Memorial Hosp ▲	Gen	NPAssn	150	94	30	809	5,402
Veterans Admin Hospital	Gen	Vet	534	467			3,248
Walla Walla, 18 109—Walla Walla							
Blue Mountain *Sanatorium*	TB	County	52	54			48
St Mary's Hospital▲○	Gen	Church	125	75	25	769	4,054
Veterans Admin Hosp +▲○	TB	Vet	421	367			805
Walla Walla General Hosp ▲	Gen	Church	53	44	14	388	2,152
Wenatchee, 11,620—Chelan							
Central Washington Deaconess Hospital▲○	Gen	Church	100	59	24	598	2,628
St Anthony's Hospital▲	Gen	Church	60	45	18	400	2,424
Yakima, 27,221—Yakima							
St Elizabeth Hospital▲○	Gen	Church	261	180	55	2,086	10,762
Yakima County Hospital	Gen	County	122	98	10	359	2,924

Related Institutions

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Arlington, 1,460—Snohomish							
Arlington General Hospital	Gen	Indiv	18	7	8	171	650
Cle Elum, 2,230—Kittitas							
Roslyn *Cle Elum Beneficial* Company Hospital	Indus	NPAssn	21	17			546
Colville, 2,418—Stevens							
Valley View Hospital	Gen	County	40	29	4	15	223
Ione, 681—Pend Oreille							
Ione Hospital	*Gen*	*Indiv*	10		5		
Medical Lake, 2,114—Spokane							
Lakeland Village	MeDe	State	1,420	1,410			55
Seattle, 368,302—King							
Shadel Sanitarium	Alcoh	Corp	42	24			857
Tacoma, 109,408—Pierce							
Washington Minor Hospital	Gen	NPAssn	21	11			1,303
White Shield Home	Mat	NPAssn	26	12	12	*36*	50

Key to symbols and abbreviations is on page 38

WASHINGTON—Continued

Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Walla Walla 18 109—Walla Walla							
Washington State Penitentiary Hospital	Inst	State	59	30			474
White Salmon 985—Klickitat							
West Klickitat Hospital	Gen	County	18	12	4	97	

WEST VIRGINIA

Hospitals and Sanatoriums

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Alderson 1 493—Monroe							
Federal Reformatory for Women	Inst	USPHS	50	16	6	12	1 175
Barboursville 1 550—Cabell							
Barboursville Unit of Huntington State Hospital	MeDe	State	316	314			
Beckley 12 852—Raleigh							
Beckley Hospital+▲	Gen	Part	178	139	20	657	7,882
Pinecrest Sanitarium▲	TB	State	647	551			831
Raleigh General Hospital	Gen	Corp	100	87	20	530	3,918
Bluefield 20 641—Mercer							
Bluefield Sanitarium★▲	Gen	Corp	165	148	26	1 004	7,990
Brown s Hospital	Gen	Indiv	40	5	3	23	413
St Luke s Hospital▲	Gen	Corp	60	44	20	366	2,587
Buckhannon 4 450—Upshur							
St Joseph s Hospital▲	Gen	Church	44	28	17	411	1,508
Charleston 67 914—Kanawha							
Charleston General Hospital★+▲○	Gen	NPAssn	250	170	35	1 171	8,564
Kanawha Valley Hosp ★▲○	Gen	Corp	148	106	15	712	5 665
McMillan Hospital▲○	Gen	Corp	100	80	20	902	4 505
Mountain State Memorial Hospital▲○	Gen	NPAssn	88	72	12	583	4 151
St Francis Hospital▲○	Gen	Church	130	104	30	1 229	5 421
Salvation Army Hospital	Gen	Church	22	10	9	221	584
Staats Hospital▲	Gen	Corp	56	44	12	244	2 120
Charles Town 2,996—Jefferson							
Charles Town General Hosp	Gen	NPAssn	42	22	12	222	1 036
Clarksburg 30,579—Harrison							
St Mary s Hospital▲○	Gen	Church	205	180	39	1 032	6 976
Union Protestant Hospital○	Gen	NPAssn	60	53	18	722	2 820
Denmar 100—Pocahontas							
Denmar Sanatorium	TB	State	125	114			105
Elkins 8 133—Randolph							
Davis Memorial Hospital▲○	Gen	NPAssn	100	52	19	491	2,255
Memorial General Hospital▲	Gen	NPAssn	105	83	15	129	3 039
Fairmont 23,105—Marion							
Fairmont Emergency Hosp ▲	Gen	State	68	53	10	208	1 945
Fairmont General Hosp ▲○	Gen	City	147	147	18	1 148	7 418
Gassaway 1,429—Braxton							
Gassaway Hospital	Gen	Corp	18	10	6	170	574
Glen Dale 1,348—Marshall							
Reynolds Memorial Hosp ▲	Gen	NPAssn	99	60	17	517	3 060
Grafton 7 431—Taylor							
Grafton City Hospital	Gen	City	66	56	10	367	2 061
Hinton 5 815—Summers							
Hinton Hospital▲	Gen	Corp	75	53	12	187	2,328
Holden 3 000—Logan							
Holden Hospital	Gen	Part	83	25	4	203	2,269
Hopemont 475—Preston							
Hopemont Sanitarium▲	TB	State	298	260			225
Huntington 78 836—Cabell							
Chesapeake and Ohio Hospital★+▲	Gen	NPAssn	165	149	20	216	4 881
Guthrie Hospital	Gen	Indiv	41	14	10	128	758
Huntington Orthopedic Hospital▲	Orth	NPAssn	120	65			602
Huntington State Hospital	Ment	State	1 160	1 160			847
Memorial Hospital▲○	Gen	NPAssn	130	71	22	531	3 483
St Mary s Hospital★+▲○	Gen	Church	300	278	50	2 200	14 456
Veterans Admin Hospital▲	Gen	Vet	290	250			2 772
Keyser 6,177—Mineral							
Potomac Valley Hospital	Gen	Corp	50	35	16	517	2,052
Lakin 50—Mason							
Lakin State Hospital▲	Ment	State	410	440			446
Logan 5 166—Logan							
Logan General Hospital	Gen	Corp	100	55	26	523	3,829
Mercy Hospital	Gen	Corp	60	57	6	175	2 729
Madison 1,205—Boone							
Madison General Hospital	Gen	Corp	35	16	6	171	1,825
Marlinton 1 644—Pocahontas							
Pocahontas Memorial Hosp	Gen	County	30	30	10	244	1 078
Martinsburg, 15 063—Berkeley							
City Hospital○	Gen	NPAssn	85	53	10	313	1,382
Kings Daughters Hospital▲○	Gen	NPAssn	85	59	17	435	2,257
Veterans Admin Center▲	Gen	Vet	900	695			3 548
Milton 1 641—Cabell							
Morris Memorial Hospital+▲	Orth	NPAssn	125	82			560
Montgomery 3,231—Fayette							
Laird Memorial Hospital+▲○	Gen	Corp	127	113	15	482	5 763
Morgantown 16 655—Monongalia							
Heiskell Memorial Hospital▲	Gen	Indiv	90	76	25	645	4 336
Monongalia General Hosp ▲○	Gen	NPAssn	125	82	26	933	4 979
New Martinsville 3 491—Wetzel							
Wetzel County Hospital	Gen	NPAssn	30	23	7	417	1 696
Oak Hill 3,213—Fayette							
Oak Hill Hospital▲	Gen	Part	75	57	8	218	2,856
Parkersburg 30 103—Wood							
Camden-Clark Memorial Hospital▲○	Gen	City	154	130	35	1 040	6 507
St Joseph s Hospital★▲○	Gen	Church	170	152	30	1 045	6 094

WEST VIRGINIA—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Parsons 2 077—Tucker							
Tucker County Hospital	Gen	Corp	35	No data supplied			
Philippi 1 955—Barbour							
Myers Clinic Hospital+▲○	Gen	Part	70	62	12	266	2 855
Princeton 7 426—Mercer							
Mercer Memorial Hospital	Gen	Corp	58	55	12	514	2 352
Ravenswood 1 061—Jackson							
Ravenswood Hospital	Gen	Indiv	14	5	4	59	168
Richwood 5 051—Nicholas							
McClung Hospital	Gen	Indiv	35	10	12	247	913
Sacred Heart Hospital	Gen	Church	36	30	10	309	1 729
Ronceverte 2,265—Greenbrier							
Greenbrier Valley Hospital▲	Gen	Corp	48	27	8	227	1 743
South Charleston 10 377—Kanawha							
Dunn Hospital	Gen	Indiv	24	11	12	159	744
Herbert J Thomas Memorial Hospital▲	Gen	NPAssn	97	67	17	922	4 099
Kanawha Valley Medical Center	Ven	State	207	86			3 148
Spencer 2 497—Roane							
De Pue Hospital	Gen	Indiv	21	5	5	151	434
Spencer State Hospital	Ment	State	985	975			404
Sutton 1 083—Braxton							
Sutton *General Hospital*	Gen	Corp	50	19	12	304	1 259
Triadelphia 359—Ohio							
Ohio County Tuberculosis Sanatorium	TB	County	37	30			29
Welch 6 264—McDowell							
Grace Hospital▲	Gen	Corp	153	121	12	457	5,893
Stevens Clinic Hospital▲	Gen	Corp	140	105	15	454	6 983
Welch Emergency Hospital	Gen	State	85	53	10	122	1 397
Weston 8,268—Lewis							
Weston City Hospital	Gen	Corp	50	26	12	320	1 423
Weston State Hospital▲	Ment	State	1,924	1 907			751
Wheeling 61 099—Ohio							
Ohio Valley General Hospital★▲○	Gen	NPAssn	333	283	35	1 435	9,033
Wheeling Hospital★▲○	Gen	Church	240	190	40	1,316	7 053
Williamson 8 366—Mingo							
Williamson Memorial Hospital▲	Gen	Part	115	90	9	1,808	4 636

Related Institutions

Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Berkeley Springs 1 145—Morgan							
Morgan County War Memorial Hospital	Gen	County	34	24	9	198	958
Charleston 67,914—Kanawha							
Hillcrest Sanatorium	TbChil	NPAssn	52	36			35
Huntington 78 836—Cabell							
Owen Clinic Hospital	N&M	Corp	25	9			25
Rowley Clinic Hospital▲	Gen	Indiv	25	18	9	133	875
Moundsville 14 168—Marshall							
West Virginia Penitentiary Hospital	Inst	State	60	No data supplied			
St Marys 2,201—Pleasants							
West Virginia Training School	MeDe	State	120	126			17

WISCONSIN

Hospitals and Sanatoriums

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Adams 1,310—Adams							
Adams-Friendship Hospital	Gen	NPAssn	8	6	2	62	207
Algoma 2 652—Kewaunee							
Algoma Hospital	Gen	NPAssn	14	8	4	174	504
Amery 1 461—Polk							
Amery Hospital	Gen	Indiv	19	12	5	221	729
Antigo 9 495—Langlade							
Langlade County Memorial Hospital	Gen	Church	55	52	14	690	2 402
Appleton 28 436—Outagamie							
St Elizabeth Hospital★▲	Gen	Church	201	134	50	2,015	7 225
Arcadia 1 830—Trempealeau							
St Joseph s Hospital	Gen	Church	75	30	18	106	1 094
Ashland 11 101—Ashland							
St Joseph s Hospital	Gen	Church	132	68	18	387	3 255
Trinity Hospital	Gen	Church	60	42	8	255	1 825
Baldwin, 918—St Croix							
Baldwin Community Hosp	Gen	NPAssn	16	10	6	179	781
Baraboo 6 415—Sauk							
St. Mary s Ringling Hospital	Gen	Church	85	68	22	637	2 494
Bayfield 1,212—Bayfield							
Pure Air Sanatorium	TB	Counties	65	59			10
Beaver Dam 10 356—Dodge							
Lutheran Deaconess Hospital	Gen	Church	57	49	12	309	1 916
St Joseph s Hospital▲○	Gen	Church	75	67	19	622	3,253
Beloit 25 365—Rock							
Beloit Municipal Hospital▲	Gen	City	140	100	39	1 101	[illegible]
Berlin 4,247—Green Lake							
Berlin Memorial Hospital	Gen	NPAssn	29	26	13	324	1 429
Black River Falls 2,539—Jackson							
Krohn Clinic and Hospital	Gen	Part	29	24	10	209	[illegible]
Boscobel 2 008—Grant							
Brookside-Parker Hospital	Gen	Part	22	17	8	151	[illegible]
Burlington 4 414—Racine							
Burlington Memorial Hosp ▲	Gen	NPAssn	35	25	10	[illegible]	[illegible]
Chippewa Falls 10,368—Chippewa							
Northern Wisconsin Colony and Training School	MeDe	State	[illegible]	1 040			210
St Joseph s Hospital	Gen	Church	175	[illegible]	25	[illegible]	5 012

Key to symbols and abbreviations is on page 38

WISCONSIN—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Clintonville, 4,134—Waupaca							
Clintonville Community Hospital	Gen	City	22	13	8	225	980
Columbus, 2,760—Columbia							
St Mary's Hospital	Gen	Church	56	35	12	202	1,536
Cumberland, 1,539—Barron							
Cumberland Hospital	Gen	NPAssn	20	7	6	140	537
Dodgeville 2,269—Iowa							
Dodgeville General Hospital	Gen	NPAssn	25	18	6	108	970
St. Joseph's Hospital	Gen	Church	61	58	16	436	1,730
Eau Claire, 30,745—Eau Claire							
Luther Hospital★▲○	Gen	NPAssn	193	152	32	934	6,330
Mt Washington Sanatorium	TB	County	91	88			89
Sacred Heart Hospital	Gen	Church	200	168	15	781	7,165
Edgerton, 3 266—Rock							
Edgerton Memorial Hospital	Gen	NPAssn	31	24	10	224	1,212
Elkhorn, 2 382—Walworth							
Lakeland Hospital▲	Gen	County	85	57	23	942	2,456
Fond du Lac, 27,209—Fond du Lac							
St Agnes Hospital★▲○	Gen	Church	257	309	75	1,666	10 313
Fort Atkinson 6,153—Jefferson							
Fort Atkinson Memorial Hospital	Gen	NPAssn	20	17	8	317	1,070
Frederic 725—Polk							
Frederic Municipal Hospital	Gen	City	30	16	8	156	862
Grantsburg, 874—Burnett							
Community Hospital	Gen	NPAssn	30	18	5	52	537
Green Bay 46 235—Brown							
Bellin Memorial Hospital▲○	Gen	Church	97	78	22	890	5,091
St Mary's Hospital▲○	Gen	Church	100	72	25	1,061	5,508
St Vincent's Hospital	Gen	Church	225	202	25	1,225	10,376
Hartford 3 910—Washington							
St Joseph's Hospital	Gen	Church	58	31	15	358	1,180
Hawthorne 75—Douglas							
Middle River Sanatorium▲	TB	County	118	105			86
Hayward, 1 571—Sawyer							
Hayward Indian Hospital	Gen	IA	45	25	10	101	623
Hazel Green 582—Grant							
Hazel Green Hospital	Gen	NPAssn	25	17	6	226	826
Iola 746—Waupaca							
Iola Hospital	Gen	NPAssn	20	12	20	111	425
Janesville 22 992—Rock							
Mercy Hospital★▲○	Gen	Church	200	114	50	883	4,321
Pinehurst Sanatorium▲	TB	County	75	73			78
Jefferson, 3,059—Jefferson							
Forest Lawn Sanatorium	TB	County	58	45			97
Kaukauna, 7,382—Outagamie							
Riverview Sanatorium▲	TB	County	65	61			122
Kenosha, 47 765—Kenosha							
Kenosha Hospital▲	Gen	NPAssn	150	98	25	707	7,748
St Catherine's Hospital▲	Gen	Church	75	62	24	918	3,201
Willowbrook Sanatorium▲	TB	County	45	30			36
Keshena 500—Shawano							
St Joseph's Indian Hospital	Gen	Fed	63	30	9	127	1,123
Kewaunee 2 583—Kewaunee							
Witepalek Nesemann Hosp	Gen	Part	9	4	5	128	345
La Crosse, 42,707—La Crosse							
Grandview Hospital▲	Gen	NPAssn	67	30	10	127	1,012
La Crosse Hospital	Gen	NPAssn	42	28	8	163	1,178
La Crosse Lutheran Hospital★+▲	Gen	Church	140	118	12	377	4,834
St Ann's Hospital	Unit of St Francis Hospital						
St Francis Hospital★▲○	Gen	Church	317	213	48	1,615	9,603
Ladysmith 3 671—Rusk							
St Mary's Hospital	Gen	Church	75	60	12	455	2,705
Lancaster 2 963—Grant							
Grant Community Hospital	Gen	NPAssn	16	7	5	170	502
Lancaster General Hospital	Gen	Part	19	8	8	109	305
Laona, 1 800—Forest							
Ovitz Hospital	Gen	Part	20	6	8	113	345
Madison 67,447—Dane							
Lake View Sanatorium▲	TB	County	142	135			156
Madison General Hosp ★+▲○	Gen	NPAssn	177	185	26	1,602	6,877
Mendota State Hospital	Ment	State	785	753			1,212
Methodist Hospital★+▲○	Gen	Church	132	99	18	478	4,555
Morningside Sanatorium	TB	NPAssn	50	47			43
St Mary's Hospital★+▲○	Gen	Church	230	180	50	1,697	7,488
State of Wisconsin General Hospital★+▲○	Gen	State	750	615	22	274	14,488
Wisconsin Orthopedic Hospital for Children▲	Unit of State of Wisconsin General Hosp						
Manitowoc 24,401—Manitowoc							
Holy Family Hospital▲○	Gen	Church	230	113	40	1,112	5,780
Marinette, 14 183—Marinette							
Marinette General Hospital▲	Gen	County	80	76	25	621	3,583
Marshfield, 10,359—Wood							
St Joseph's Hospital★+▲○	Gen	Church	250	161	30	1,074	7,591
Mauston, 2,021—Juneau							
Mauston Hospital	Gen	Corp	50	30	10	265	1,494
Medford 2,361—Taylor							
Medford Clinic Hospital	Gen	Corp	38	25	8	307	1,255
Menomonie, 6 582—Dunn							
Memorial Hospital	Gen	CyCo	28	23	12	343	980
Merrill 8 711—Lincoln							
Holy Cross Hospital▲	Gen	Church	80	51	14	366	2,542
Lincoln County Hospital	InstGen	County	25	18	1		59
Milwaukee, 587,472—Milwaukee							
Columbia Hospital★+▲○	Gen	NPAssn	160	135	35	962	5,267
Doctors Hospital	Gen	NPAssn	54	21	10	87	798
Evangelical Deaconess Hospital★+▲○	Gen	Church	138	105	30	1,636	6,949

WISCONSIN—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Johnston Emergency Hosp ▲	Emer	City	25	25	4	4	
Milwaukee Children's Hospital+▲⊙	Chil	NPAssn	150	115			4,971
Milwaukee County Asylum for Chronic Insane	Ment	County	2,257	2,224			446
Milwaukee County Hosp ★+▲○	Gen	County	950	784	33	438	19,117
Milwaukee County Hospital for Mental Diseases+▲○	Ment	County	996	1,043			641
Milwaukee Hospital★+▲○	Gen	Church	263	223	69	2,773	9,841
Milwaukee Sanitarium	See Wauwatosa						
Misericordia Hospital★▲○	Gen	Church	110	81	30	1,128	4 567
Mount Sinai Hospital★+▲○	Gen	NPAssn	175	169	48	2 301	9,269
Muirdale Sanatorium+▲⊙	TB	County	596	542			521
Sacred Heart Sanitarium▲○	Gen	Church	250	208			2,397
St Anthony Hospital	Gen	Church	111	75	40	1 504	5,291
St Joseph's Hospital★+▲○	Gen	Church	372	271	85	3,642	13,036
St Luke's Hospital★+▲	Gen	Church	135	122	35	1,590	7,110
St Mary's Hill Sanitarium▲○	N&M	Church	100	85			322
St Mary's Hospital★+▲○	Gen	Church	210	167	52	1,775	7,667
St Michael Hospital★▲○	Gen	Church	138	90	23	812	4,608
Shorewood Hospital-Sanitarium▲	N&M	Corp	55	49			311
South View Hospital▲	Iso	City	205	26			1,112
Veterans Admin Center+▲	Gen	Vet	1,463	1,114			7,693
West Side Hospital	Gen	NPAssn	35	22	14	211	1,741
Mondovi, 2,077—Buffalo							
Gillette Hospital	Gen	Indiv	22	15	5	97	543
Mondovi Clinic Hospital	Gen	Indiv	25	14	6	66	526
Monroe, 6,182—Green							
St Clare Hospital	Gen	Church	75	81	18	813	3 717
Neenah 10 645—Winnebago							
Theda Clark Memorial Hospital▲	Gen	NPAssn	170	88	31	802	4 006
Neillsville 2,562—Clark							
Neillsville Hospital	Gen	Part	25	13	11	202	838
New London, 4,825—Waupaca							
Borchardt Clinic Memorial Hospital	Gen	NPAssn	15	11	6	99	604
Community Hospital	Gen	Church	60	36	14	464	1 633
Oconomowoc, 4,562—Waukesha							
Rogers Memorial Sanitarium	N&M	NPAssn	54	46			133
Summit Hospital	Gen	Corp	48	43	6	128	442
Oconto 5,362—Oconto							
Oconto County and City Hospital	Gen	NPAssn	42	18	15	203	647
Oconto Falls, 1 888—Oconto							
Oconto Falls Hospital	Gen	City	20	9	8	257	883
Onalaska, 1 742—La Crosse							
Oak Forest Sanatorium	TB	County	60	51			33
Osceola, 642—Polk							
Ladd Memorial Hospital	Gen	NPAssn	14	9	2	44	416
Oshkosh, 39,089—Winnebago							
Mercy Hospital★▲○	Gen	Church	207	155	54	1,218	7,463
Park Falls, 3,252—Price							
Park Falls Hospital	Gen	NPAssn	25	13	6	213	723
Platteville, 4,762—Grant							
Wilson Cunningham Hospital	Gen	Part	25	12	8	85	254
Plum City, 368—Pierce							
Plum City Hospital	Gen	NPAssn	16	15	5	132	563
Plymouth, 4 170—Sheboygan							
Plymouth Hospital	Gen	Church	40	23	14	223	762
Rocky Knoll Sanatorium▲	TB	County	78	74			115
Portage, 7 016—Columbia							
Divine Savior Hospital	Gen	Church	94	71	14	544	3 340
Port Washington, 4 046—Ozaukee							
St Alphonsus Hospital	Gen	Church	70	54	15	481	2 614
Prairie du Chien, 4,622—Crawford							
Beaumont Hospital	Gen	NPAssn	18	11	8	145	529
Prairie du Chien Sanitarium Hospital	Gen	NPAssn	55	35	8	292	1,761
Prescott, 857—Pierce							
St Croixdale Sanitarium	GenN&M	Corp	67	61	2	33	390
Racine, 67,195—Racine							
St Luke's Hospital▲○	Gen	Church	97	86	34	1,098	4,187
St. Mary's Hospital★▲	Gen	Church	179	114	50	1 087	5 731
Sunny Rest Sanatorium	TB	County	80	75			55
Reedsburg 3,608—Sauk							
Reedsburg Municipal Hosp	Gen	City	30	20	12	348	1,182
Rhinelander, 8 501—Oneida							
St Mary's Hospital▲	Gen	Church	75	67	10	520	2,803
Rice Lake, 5,719—Barron							
Lakeside Methodist Hospital	Gen	Church	50	32	14	303	1,975
St Joseph's Hospital	Gen	Church	40	39	12	375	2,320
Richland Center, 4,364—Richland							
Richland Hospital	Gen	NPAssn	73	53	15	650	2,711
Ripon, 4,566—Fond du Lac							
Ripon Municipal Hospital	Gen	City	20	17	10	212	845
River Falls, 2,806—Pierce							
City Hospital	Gen	City	25	17	8	216	645
St Croix Falls, 1,007—Polk							
St Croix Falls Hospital	Gen	NPAssn	18	9	5	138	500
Shawano, 5,505—Shawano							
Shawano Municipal Hosp	Gen	NPAssn	65	56	20	524	2,090
Sheboygan, 40,638—Sheboygan							
St Nicholas Hospital	Gen	Church	222	167	40	1,175	7 011
Sheboygan Memorial Hosp ▲	Gen	NPAssn	103	85	22	636	3,882
Shullsburg, 1,197—Lafayette							
Shullsburg General Hosp	Gen	Indiv	15	6	4	29	215
South Milwaukee, 11,134—Milwaukee							
South Milwaukee Hospital	Gen	Indiv	16	9	6	314	727
Sparta, 5,820—Monroe							
St Mary's Hospital	Gen	Church	65	43	20	475	1 936

Key to symbols and abbreviations is on page 38

WISCONSIN—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Stanley 2 021—Chippewa							
Victory Hospital	Gen	NPAssn	21	17	7	374	1,309
Statesan 110—Waukesha							
Wisconsin State Sanatorium+▲	TB	State	241	162			107
Stevens Point 15 777—Portage							
River Pines Sanatorium▲	TB	Church	62	60			121
St Michael s Hospital▲	Gen	Church	135	127	35	810	5 041
Stoughton 4 743—Dane							
Stoughton Hospital	Gen	NPAssn	47	27	13	271	1 159
Sturgeon Bay 5 439—Door							
Door County Memorial Hospital	Gen	NPAssn	60	40	17	411	2 717
Superior 35 136—Douglas							
St Francis Hospital	Gen	Church	50	48	10	292	1,395
St Joseph s Hospital	Gen	Church	38	80	14	467	1 391
St Mary s Hospital	Gen	Church	133	114	28	365	3,219
Tomah 3 817—Monroe							
Veterans Admin Hosp +▲	Ment	Vet	1 172	940			944
Tomahawk 3 365—Lincoln							
Sacred Heart Hospital	Gen	Church	50	37	6	188	1 300
Two Rivers 10 302—Manitowoc							
Two Rivers Municipal Hosp	Gen	City	52	35	14	370	2,369
Union Grove 973—Racine							
Southern Wisconsin Colony and Training School	MeDe	State	961	950			120
Veterans Administration —Milwaukee							
Veterans Admin Center	See Milwaukee						
Viroqua 3,549—Vernon							
Vernon Memorial Hospital	Gen	NPAssn	28	28	7	400	1 361
Washburn 2 303—Bayfield							
Washburn Hospital	Gen	NPAssn	15	10	5	66	394
Watertown 11 301—Jefferson							
St Mary s Hospital	Gen	Church	81	67	20	823	3 202
Waukesha 19,242—Waukesha							
Milwaukee Children s Hospital Convalescent Home	Unit of Milwaukee Children s Hospital						
Veterans Admin Hosp ▲	TB	Vet	256	221			314
Waukesha Memorial Hosp ▲	Gen	City	110	84	31	1 196	4,218
Waupaca 3 458—Waupaca							
Mirror Lake Hospital	Gen	NPAssn	12	7	5	77	439
Waupaca Hospital	Gen	Part	17	12	6	49	479
Waupun 6 798—Fond du Lac							
Central State Hospital	Ment	State	360	347			127
Wausau 27,268—Marathon							
Mount View Sanatorium	TB	County	74	64			64
St Mary s Hospital▲○	GenIso	Church	240	179	45	1 003	8,032
Wausau Memorial Hosp ▲	Gen	NPAssn	130	102	30	531	4 075
Wauwatosa 27 769—Milwaukee							
Milwaukee Sanitarium+▲	N&M	Corp	161	134			440
West Bend 5 452—Washington							
St Joseph s Hospital	Gen	Church	100	65	24	435	2,483
West dePere —Brown							
Hickory Grove Sanatorium	TB	County	86	77			51
Whitehall 1 035—Trempealeau							
Whitehall Community Hosp	Gen	NPAssn	34	32	9	211	1 039
Whitelaw 225—Manitowoc							
Maple Crest Sanatorium▲	TB	County	46	40			32
Wild Rose 539—Waushara							
Wild Rose Hospital	Gen	NPAssn	24	21	6	92	889
Winnebago 150—Winnebago							
Sunny View Sanatorium	TB	Counties	82	67			110
Winnebago State Hosp ▲○	Ment	State	973	93[illegible]			1 [illegible]20
Wisconsin Rapids 11 416—Wood							
Riverview Hospital	Gen	NPAssn	85	59	25	870	3 321
Wood —Milwaukee							
Veterans Admin Center	See Milwaukee						

Related Institutions

Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Appleton 28 436—Outagamie							
Outagamie County Hospital	Ment	County	268	262			31
Chippewa Falls 10,368—Chippewa							
Chippewa County Hosp	Ment	County	375	375			435
Dodgeville 2,269—Iowa							
Iowa County Hospital	Ment	County	184	166			10
Durand 1 858—Pepin							
St Benedict Community Hospital	Gen	Church	19	14	8	185	629
Eau Claire 30 745—Eau Claire							
Eau Claire County Hosp	Ment	County	255	253			55
Elkhorn 2,382—Walworth							
Walworth County Hospital	Ment	County	236	231			60
Fond du Lac 27 209—Fond du Lac							
Fond du Lac County Hospital	Ment	County	332	317			34
Green Bay 46,235—Brown							
Brown County Hospital	Ment	County	316	307			51
Wisconsin State Reformatory Hospital	Inst	State	12	4			300
Itasca —Douglas							
Douglas County Hospital and Tuberculosis Sanatorium	MentTb	County	362	341			48
Parkland Sanatorium	Unit of Douglas County Hospital and Tuberculosis Sanatorium						
Janesville 22 992—Rock							
Rock County Hospital and Home	Ment	County	240	239			66
Jefferson 3 059—Jefferson							
Jefferson County Hospital	Ment	County	291	287			41
Juneau 1,301—Dodge							
Dodge County Hospital	Ment	County	255	216			247
Kewaunee 2,533—Kewaunee							
Cmejla Hospital	Gen	Indiv	7	1	1	17	83
Lancaster 2 963—Grant							
Grant County Hosp	Ment	County	242	2[illegible]0			21
Madison 67 447—Dane							
East Washington Avenue Hospital	Iso	City	59	2			91
Manitowoc 24 404—Manitowoc							
Manitowoc County Hosp	Ment	County	226	221			23
Marshfield 10,359—Wood							
Wood County Hospital	Ment	County	252	251			15
Menomonie 6,582—Dunn							
Dunn County Hospital	Ment	County	181	178			17
Milwaukee 587 472—Milwaukee							
Layton Home	Unit of Milwaukee Hospital						
Margo Hospital and Convalescent Home	Conv	Indiv	27	26			85
Milwaukee County Home for Dependent Children	Inst	County	75	61			
St Camillus Hospital	Chr	Church	65	84			44
Salvation Army Martha Washington Women s Home and Hospital	Mat	Church	76	35	15	180	2[illegible]0
Shore View Home	Conv	Corp	65	55			90
Monroe 6 182—Green							
Green County Hospital	Ment	County	291	267			62
New Richmond 2,358—St Croix							
St. Croix County Hospital	Ment	County	177	176			10
Oshkosh 39 089—Winnebago							
Alexian Brothers Hospital	N&M	Church	90	72			56
Owen 1 083—Clark							
Clark County Hospital	Ment	County	385	385			25
Peshtigo 1 947—Marinette							
Marinette County Hospital	Ment	County	310	292			31
Racine 67 195—Racine							
Lincoln Memorial Hospital	Iso	City	50	6			1[illegible]1
Racine County Hospital and Home	InstMent	County	475	455			120
Reedsburg 3 608—Sauk							
Sauk County Hospital and Home	Ment	County	210	186			24
Richland Center 4 364—Richland							
Richland County Hospital	Ment	County	154	143			15
Shawano 5 565—Shawano							
Shawano County Hospital	Ment	County	190	192			30
Sheboygan 40 638—Sheboygan							
Sheboygan County Hospital for Chronic Insane	Ment	County	300	281			79
Shell Lake 872—Washburn							
Shell Lake Hospital	Gen	NPAssn	13	10	5	23[illegible]	917
Sparta 5,820—Monroe							
Monroe County Hospital	Ment	County	190	187			51
Superior 35 136—Douglas							
Douglas County Hospital and Tuberculosis Sanatorium	See Itasca						
Verona 535—Dane							
Dane County Hospital and Home	Ment	County	293	286			23
Viroqua 3,549—Vernon							
Vernon County Hospital	Ment	County	225	200			46
Watertown 11 301—Jefferson							
Bethesda Lutheran Home	MeDe	Church	355	340			10
Waukesha 19,242—Waukesha							
Waukesha County Hospital	Ment	County	230	223			69
Waupun 6 798—Fond du Lac							
Wisconsin State Prison Hospital	Inst	State	21	20			400
Wausau 27 968—Marathon							
Marathon County General Hospital	Inst	County	65	60			101
Marathon County Hosp	Ment	County	223	217			6[illegible]
West Bend 5 452—Washington							
Washington County Hosp	Ment	County	17[illegible]	1[illegible]6			163
West Salem 1 254—La Crosse							
La Crosse County Hospital	Ment	County	303	296			61
Weyauwega 1 173—Waupaca							
Waupaca County Hospital	Ment	County	196	189			16
Whitehall 1 035—Trempealeau							
Trempealeau County Hosp	Ment	County	210	178			54
Winnebago 150—Winnebago							
Winnebago County Hosp	Ment	County	266	267			30
Wyocena 706—Columbia							
Columbia County Hosp	Ment	County	330	3[illegible]0			2[illegible]

WYOMING

Hospitals and Sanatoriums

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Afton 1 211—Lincoln							
Latter Day Saints Star Valley Hospital	Gen	Church	1[illegible]	6	6	210	[illegible]
Basin 1 099—Big Horn							
Basin Hospital	Gen	Indiv	19	5	6	60	[illegible]
Wyoming State Sanatorium▲	TB	State	34	23			3[illegible]
Casper 17 964—Natrona							
Memorial Hospital of Natrona County▲	Gen	County	141	11[illegible]	24	675	5,[illegible]
Cheyenne 22,474—Laramie							
Memorial Hospital of Laramie County▲	Gen	County	1[illegible]0	111	30	94	5 104
Station Hospital	Gen	Army	397	1[illegible]	11	291	[illegible]
Veterans Admin Center▲	Gen	Vet	201	134			2,1[illegible]3
Cody 2 536—Park							
Cody Hospital	Gen	NPAssn	5[illegible]	2[illegible]	14	22[illegible]	1 [illegible]1

Key to symbols and abbreviations is on page 38

WYOMING—Continued

Hospitals and Sanatoriums	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Douglas, 2,205—Converse							
Converse County Memorial Hospital	Gen	County	40	17	8	124	1,240
Evanston, 3,605—Uinta							
Wyoming State Hospital▲	Ment	State	650	622			174
Fort Washakie, 150—Fremont							
Wind River Indian Hospital	Gen	IA	44	13	6	92	441
Gillette, 2,177—Campbell							
McHenry Hospital	Gen	Indiv	15	10	0	48	410
Greybull, 1,828—Big Horn							
St Luke's Hospital	Gen	Indiv	12	4	5	84	1,598
Jackson, 1,046—Teton							
St John's Hospital	Gen	Church	28	12	7	98	933
Kemmerer, 2,026—Lincoln							
Lincoln County Miner's Hospital	Gen	NPAssn	25	5	6	108	596
Lander, 2,594—Fremont							
Bishop Randall Hospital	Gen	Church	22	14	10	392	1,735
Laramie, 10,627—Albany							
Ivinson Memorial Hospital	Gen	County	85	53	16	544	3,005
Lovell, 2,175—Big Horn							
Lovell Hospital	Gen	Part	22	10	9	160	720
Lusk 1,814—Niobrara							
Spencer Hospital	Gen	Indiv	19	11	6	84	1,020
Powell, 1,948—Park							
Memorial Hospital	Gen	Church	25	12	8	268	1,236
Rawlins, 5,531—Carbon							
Memorial Hospital of Carbon County	Gen	County	55	28	10	205	723
Rock Springs, 9,827—Sweetwater							
Memorial Hospital of Sweetwater County	Gen	County	112	68	17	512	3,835
Sheridan, 10,529—Sheridan							
Memorial Hospital of Sheridan County	Gen	County	89	53	16	400	2,377
Veterans Admin Hospital▲	Ment	Vet	777	705			798
Torrington, 2,344—Goshen							
Goshen County Memorial Hospital	Gen	County	21		12	Estab	1949
Wheatland, 2,110—Platte							
Wheatland General Hosp ▲	Gen	NPAssn	41	25	7	96	1,890
Worland, 2,710—Washakie							
Washakie Memorial Hosp	Gen	Church	21		8	Estab	1949
Hanna, 1,127—Carbon							
Hanna Hospital	Gen	Indiv	10	7	4	41	215
Lander 2,594—Fremont							
Wyoming State Training School	McDe	State	400	404			24
Sheridan, 10,529—Sheridan							
Reynolds Home	Gen	Indiv	11	7	11	113	312
Yellowstone Park, 200—Yellowstone National Park							
Mammoth Hospital	Gen	Part	40	14	2	5	260

ALASKA

Hospitals Sanatoriums and Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Anchorage 3,495							
Providence Hospital	Gen	Church	86	67	21	610	2,926
Barrow 363							
Point Barrow Hospital	GenTb	Fed	20	5	4	53	111
Bethel 376							
Alaska Native Service Hosp	Gen	IA	61	49	6	89	596
Cordova, 938							
Cordova Community Hosp	Gen	NPAssn	20	10	4	42	267
Fairbanks, 3,455							
St Joseph's Hospital	Gen	Church	58	47	10	336	2,120
Fort Yukon, 274							
Hudson Stuck Memorial Hospital▲	Gen	Church	29	18	3	37	144
Juneau 5,729							
Alaska Native Service Hosp	GenTb	IA	69	45	5	45	419
St Ann's Hospital	Gen	Church	57	43	10	207	1,214
Kanakanak, 133							
Alaska Native Service Hosp	Gen	IA	31	26	6	37	313
Ketchikan, 4,695							
Ketchikan General Hospital	Gen	Church	75	54	14	226	1,784
Kodiak, 864							
Griffin Memorial Hospital	Gen	Church	19	11	6	92	567
U S Naval Air Station Dispensary	Gen	Navy	140	18	9	53	782
Kotzebue, 372							
Alaska Native Service Hosp	Gen	IA	17	14			192
Mount Edgecumbe							
Mount Edgecumbe Medical Center	GenTb	IA	218	205			357
Nome, 1,559							
Maynard MacDougall Memorial Hospital	Gen	Church	24	7	4	45	305
Palmer, 150							
Matanuska Valley Hospital	Gen	NPAssn	16	15	6	104	500
Petersburg, 1,323							
Petersburg General Hospital	Gen	City	9	8	4	6	310
St Paul Island, 299							
St Paul Island Hospital	Gen	Fed	9	2	3	17	54
Seldovia, 410—Alaska							
Seldovia General Hospital	Gen	City	8		3		
Seward, 949							
Seward General Hospital	Gen	Church	30	12	4	78	739
Seward Sanatorium	TB	Church	150	133			132
Sitka, 1,987							
Pioneers' Home Hospital	Inst	Ter	40	36			110

ALASKA—Continued

Hospitals, Sanatoriums and Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Skagway, 634							
Pacific and Arctic Railway and Navigation Company Hospital	Gen	NPAssn	10	2	3	32	161
Tanana, 170							
Tanana Hospital	Gen	IA	35	24	4	24	186
Valdez, 529							
Valdez Community Hospital	Gen	NPAssn	12	4	4	5	71
Wrangell, 1,162							
Bishop Rowe General Hosp	Gen	Church	13	4	3	38	263

CANAL ZONE

Hospitals, Sanatoriums and Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Ancon, 1,046							
Gorgas Hospital*+▲	Gen	Fed	705	558	45	970	11,137
Balboa, 3,922							
Palo Seco Leper Colony	Lepro	Fed	140	116			2
Coco Solo, 56							
U S Naval Hospital	Gen	Navy	150	100	10	230	3,451
Corozal, 1,370							
Corozal Hospital	Ment	Fed	487	372			151
Cristobal, 826							
Colon Hospital	Gen	Fed	271	140	28	594	3,869
Fort Clayton, 3,608							
12th Station Hospital	Gen	Army	350	168	14	422	4,298

GUAM

Hospitals Sanatoriums and Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Agana							
U S Naval Hospital	Gen	Navy	350	224	26	268	5,025

HAWAII

Hospitals and Sanatoriums Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Ewa, 3,570—Honolulu							
Ewa Plantation Company Hospital	Gen	NPAssn	50	17	6	143	1,005
Haina,—Hawaii							
Honokaa Plantation Hosp	Gen	NPAssn	30	14	2	54	473
Hana, 293—Maui							
Hana County Hospital	Gen	County	25	9	4	37	233
Hilo, 23,351—Hawaii							
Hilo Memorial Hospital▲	Gen	County	183	124	22	699	4,356
Dr Z Matayoshi Hospital	Gen	Indiv	33	6	2	25	319
Oto Hospital	Gen	Indiv	8	4	2	84	240
Puumaile Hospital	TB	County	128	116			101
Yamanoha Hospital	Gen	Indiv	5	1	2	7	54
Honokaa, 1,069—Hawaii							
Okada Hospital	Gen	Indiv	6	3	4	57	151
Honolulu, 179,359—Honolulu							
Kapiolani Maternity and Gynecological Hosp +	MatGyn	NPAssn	115	77	97	3,926	5,450
Kauikeolani Children's Hospital+▲○	Chil	NPAssn	117	77			3,710
Kuakini Hospital*○	Gen	NPAssn	120	96	20	664	5,240
Leahi Hospital+▲⊙	TB	NPAssn	604	607			368
Maluhia Home	ChrConv	CyCo	220	197			711
Queen's Hospital*+▲○	Gen	NPAssn	384	251	46	1,783	11,255
St Francis Hospital*▲○	Gen	Church	213	156	42	1,623	7,894
Shriners Hospital for Crippled Children+▲	Orth	NPAssn	28	27			120
Tripler General Hospital*+▲	Gen	Army	1,449	689	48	1,203	13,668
Hoolehua,—Maui							
Molokai Community Hosp	Gen	NPAssn	27		5	Estab	1950
Kahuku, 1,505—Honolulu							
Kahuku Hospital▲	Gen	NPAssn	28	15	6	106	686
Kaloupapa,—Kalawao							
Kalaupapa Settlement	Lepro	Ter	494	245			10
Kaneohe, 112—Honolulu							
Territorial Hospital	Ment	Ter	1,060	1,071			436
Kealakekua, 350—Hawaii							
Kona Hospital	Gen	County	50	16	9	150	591
Kealia, 195—Kauai							
Samuel Mahelona Memorial Hospital	TB	County	110	86			68
Kohala, 720—Hawaii							
Kohala County Hospital	Gen	County	50	17	6	98	743
Kula (Waiakoa P O),—Maui							
Kula General Hospital	Gen	County	20	9	6	28	461
Kula Sanatorium	TB	County	212	198			105
Lahaina, 5,217—Maui							
Pioneer Mill Company's Hospital	Gen	NPAssn	65	35	9	137	1,030
Lanai City, 3,597—Maui							
Lanai City Hospital	Gen	NPAssn	26	6	6	84	421
Laupahoehoe, 430—Hawaii							
Laupahoehoe Sugar Company Plantation Hospital	Gen	NPAssn	27	8	4	45	348
Lihue, 4,272—Kauai							
G N Wilcox Memorial Hospital▲	Gen	NPAssn	94	55	14	311	1,472
Maunaloa,—Maui							
Maunaloa Hospital	Gen	NPAssn	19	8	5	18	204
Olaa, 597—Hawaii							
Olaa Plantation Hospital	Gen	NPAssn	51	26	11	108	703

Key to symbols and abbreviations is on page 38

HAWAII—Continued

Hospitals Sanatoriums and Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Ookala, 586—Hawaii							
Ookala Hospital	Gen	NPAssn	9	4	4	23	103
Paauilo 1 233—Hawaii							
Hamakua Mill Company Hospital	Gen	NPAssn	11	4	2	26	195
Pahala 290—Hawaii							
Hawaiian Agricultural Company Hospital▲	Gen	NPAssn	37	20	5	106	890
Pearl City 1 071—Honolulu							
Hale Mohalu	Lepro	Ter	160	18			227
Waimano Home	McDe	Ter	735	658			60
Pepeekeo, 520—Hawaii							
Pepeekeo Plantation Hosp	Gen	NPAssn	44	15	4	87	629
Puunene 4 456—Maui							
Puunene Hospital▲	Gen	NPAssn	110	67	17	101	1,006
Wahiawa 5 420—Honolulu							
Wahiawa General Hospital	Gen	NPAssn	60	23	16	374	1 744
Waialua, 2,53—Honolulu							
Waialua Agricultural Company, Ltd Hospital	Gen	NPAssn	44	16	7	129	526
Wailuku, 7,319—Maui							
Maluiani Hospital	Gen	County	83	65	21	353	3,151
Waimea, 2,001—Kauai							
Waimea Hospital▲	Gen	NPAssn	36	25	7	221	1,062
Waipahu 6,906—Honolulu							
Oahu Sugar Company Hospital	Gen	NPAssn	52	25	6	147	1,073

PUERTO RICO

Hospitals Sanatoriums and Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Aguadilla 13 465—Aguadilla							
Aguadilla District Hosp	Gen	Govt	300	103	35	1 068	5 393
Aibonito 4 103—Guayama							
Aibonito Tuberculosis Hosp	TB	Govt	97	93			143
Arecibo 22,132—Arecibo							
Arecibo District Hospital★○	Gen	Govt	300	239	36	683	5,584
Clinica Dr Susoni	Gen	Corp	100	70	13	125	2 085
Bayamon 14 596—San Juan							
Bayamon District Hosp ★+▲○	Gen	Govt	300	215	35	1 544	7 483
Caguas 24,378—Guayama							
Clinica San Rafael	Gen	Indiv	60	38	6	94	1,064
Castaner, 3 856—Aguadilla							
Castaner General Hospital	Gen	Church	30	14	7	146	848
Cayey 5 622—Guayama							
Clinica Font	Gen	Indiv	50	26			499
Central Aguirre —Guayama							
Central Aguirre Hospital	Gen	NPAssn	33	12	1	18	656
Fajardo 7,108—Humacao							
Coomb's Hospital	Gen	Indiv	16	5	3	27	250
Fajardo District Hosp ★▲○	Gen	Govt	300	205	34	819	4 392
Guayama 16 910—Guayama							
Tuberculosis Hospital	TB	Govt	100				
Hato Rey —San Juan							
Clinica Dr M. Julia▲⊖	N&M	Corp	350	333			890
Hospital Dr Maldonado Sierra	Gen	Indiv	75	64	8	149	3 003
Sanatorio de la Sociedad Espanola de Auxilio Mutuo y Beneficencia de Puerto Rico	Gen	NPAssn	120	70	14	259	1 739
Humacao 7 624—Humacao							
Clinica Font Martelo	Gen	Indiv	100	45	4	15	1 338
Clinica Oriente	Gen	Indiv	84	47	4	24	1 400
Ryder Memorial Hospital	Gen	Church	56	40	13	245	1 730
Jayuya 1 803—Ponce							
Catalina Figueras Memorial Hospital	Gen	City	14	8			762
Juana Diaz, 3 931—Ponce							
Municipal Hospital	Gen	City	42				
Manati, 6,771—Arecibo							
Manati Municipal Hospital	Gen	City	50				
Mayaguez 60 371—Mayaguez							
Clinica Betances	Gen	Indiv	100	55	10	18	1 297
Clinica Drs Perea	Gen	Part	168	87	36	370	4 396
Ramirez Hospital	Gen	Indiv	19	8	7	77	533
Tuberculosis Hospital	TB	Govt	200	196			409
Ponce, 65,179—Ponce							
Clinica Quirurgica Dr Pila★▲○	Gen	NPAssn	186	134	11	86	3,843
Hospital Municipal Valentin Tricoche	Gen	City	180		20		
Hospital Santo Asilo de Damas▲○	Gen	Church	165	87	24	234	2 863
St Luke's Episcopal Hospital▲○	Gen	Church	106	53	14	203	2,170
Tuberculosis Hospital	TB	Govt	300	295			343
Rio Piedras 19 933—San Juan							
Clinica Antillas	TB	Corp	95	75			358
Hospital for the Lepers	Lepro	Govt	80	50			50
Insular Hosp of Psychiatry	Ment	Govt	1 200	1 550			664
Insular Tuberculosis Sanatorium▲	TB	Govt	725	725			764
Salinas 3 176—Guayama							
Salinas Municipal Hospital	Gen	City	50	15	6	194	550
San Juan 169 255—San Juan							
Clinica Miramar Hospital	Gen	Indiv	160		5		
Hospital San Jose	Gen	Corp	80	31	16	90	1 727
Ophthalmic Institute of Puerto Rico	Eye	Corp	60	42			1,835

PUERTO RICO—Continued

Hospitals Sanatoriums and Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Presbyterian Hospital★▲○	Gen	Church	114	75	22	814	2,661
Puerto Rico Radiotherapy Institute and Oncological Hospital	Cancer	NPAssn	57	52			1 654
Rodriguez General Hosp ▲	Gen	Army	500	311	16	405	5 734
San Juan City Hospital★+▲○	Gen	City	365	303	82	4 016	10,912
U S Marine Hospital▲	Gen	USPHS	90	64			1 222
University Hospital+▲	Gen	Govt	54	42			736
Veterans Admin Hospital▲	Gen	Vet	200	192			2 849
Santurce —San Juan							
Clinica Pereira Leal▲	Gen	Indiv	250	165	30	194	4,992
Hospital Mimiya	Gen	Indiv	100	48	10	31	1,250
Hospital Pavia▲○	Gen	Corp	76	60	13	307	2 125
Utuado 4 430—Arecibo							
Clinica San Miguel	Gen	Indiv	90	39	3	4	1 083

VIRGIN ISLANDS

Hospitals Sanatoriums and Related Institutions	Type of Service	Ownership or Control	Beds	Average Census †	Bassinets	Number of Births	Admissions †
Charlotte Amalie 9 801—St Thomas Island							
Municipal Hospital○	Gen	CyCo	111	104	20	201	2,131
Christiansted 4 495—St Croix Island							
Christiansted Municipal Hospital○	Gen	City	74	42	8	102	1 497
St Croix Hospital for Leprosy	Lepro	City	92	29			3
Frederiksted 2,498—St Croix Island							
Frederiksted Municipal Hosp	Gen	City	61	36	10	132	925

UNITED STATES ARMY HOSPITALS IN THE EUROPEAN AND FAR EAST COMMANDS

AUSTRIA

	Type of Service	Beds
Linz		
124th Station Hospital	Gen	150
Vienna		
110th Station Hospital	Gen	150
Salzburg		
9th Station Hospital	Gen	100

GERMANY

	Type of Service	Beds
Berlin		
279th Station Hospital	Gen	150
Bremerhaven		
319th Station Hospital	Gen	200
Frankfurt a/Main		
97th General Hospital	Gen	700
Giessen		
57th Field Hospital (Second Hospital Unit)	Gen	200
Munich		
98th General Hospital	Gen	1 000
Nurnberg		
15th Evacuation Hospital	Gen	500
Regensburg		
10th Field Hospital	Gen	100
Rohrbach		
130th Station Hospital	Gen	250
Stuttgart Bad Cannstatt		
11th Field Hospital	Gen	200
Wurzburg		
57th Field Hospital (First Hospital Unit)	Gen	100

TRIESTE FREE TERRITORY

	Type of Service	Beds
Trieste		
7th Station Hospital	Gen	200

JAPAN

	Type of Service	Beds
Fukuoka		
118th Station Hospital	Gen	500
Hara Machida		
125th Station Hospital	Gen	100
Irumagawa		
5th Station Hospital	Gen	150
Kobe		
8th Station Hospital	Gen	100
Kyoto		
35th Station Hospital	Gen	250
Nagoya		
395th Station Hospital	Gen	100
Osaka		
Osaka General Hospital	Gen	750
Sapporo		
161st Station Hospital	Gen	200
Sendai		
172d Station Hospital	Gen	250
Tachikawa		
376th Station Hospital	Gen	200
Tokyo		
Tokyo General Hospital	Gen	1 000
361st Station Hospital	Gen	[illegible]
Yokohama		
155th Station Hospital	Gen	[illegible]

OKINAWA

	Type of Service	Beds
Machinato		
34th General Hospital	Gen	[illegible]

Key to symbols and abbreviations is on page 38

Dr. Robert [illegible] Library
C. M. C. Medical College

SCHOOLS FOR MEDICAL TECHNOLOGISTS

The first serious effort to evaluate the standards of education for medical technologists was made in 1928, when the American Society of Clinical Pathologists established its Board of Registry Five years later the Registry formulated minimum standards for laboratory schools and published a list of approved training courses following the completion of a questionnaire survey Realizing the need for inspection, the American Society of Clinical Pathologists in 1933 requested the Council on Medical Education and Hospitals to aid in the study of courses for the training of laboratory technicians After a total of 196 schools had been visited by the Council's staff, new standards were formulated in collaboration with the Registry and the American Society of Clinical Pathologists These Essentials were adopted by the House of Delegates in May 1936, and the first list of 112 approved schools was published by the Council in August of the same year Revisions of the Essentials occurred in 1941, 1943 and 1947, those currently in use having been ratified by the House of Delegates of the American Medical Association at the Clinical Session in Washington, December 1949

There are at the present time 433 approved schools for medical technologists, this is an increase of 50 since the publication of the last previous report Enrolments advanced from 2,751 in 1948 to 3,119 in 1949 A further analysis of the annual reports received from the approved schools reveals that 353 of the 433 accredited schools graduated 1,720 students the past calendar year, an increase of 221 during a twelve month period, while 79 schools had no graduates in 1949 Various reasons were advanced for this seeming paradox, first among these being the initiation of new training programs in 1949 Other contributing causes were the suspension of training pending reorganization of established programs or the failure of applicants to satisfy prerequisite entrance requirements

The recently revised Essentials of an Acceptable School for Medical Technologists stipulate that candidates for admission should be able to fulfil the following requirements

Two years, 90 quarter hours or 60 semester hours, of college work in a college or university accredited by a recognized standardizing association During the two years the following courses must be taken (1) Eighteen quarter hours or 12 semester hours of biology which may include general biology, bacteriology, parasitology, physiology, anatomy, histology, embryology and zoology, (2) One year of general inorganic chemistry, 9 quarter hours or 6 semester hours, including lectures and laboratory, and (3) Four quarter hours or 3 semester hours of quantitative analysis, organic chemistry or biochemistry, including lectures and laboratory

The minimum entrance requirement of two years of college work in an accredited college or university is in effect in 335 of the approved schools, 60 schools require three years of college, 2 specify three and one-half years, while 36 indicate a degree is necessary for matriculation Since many of the hospitals have established college or university affiliations, degree courses are reported by 91 schools Usually the degree is conferred by the affiliating university or college, after three years of academic training and one year of hospital assignment

A total of 333 schools report the length of training as 12 months, 18 and 24 months' training is indicated by 32 and 5 schools, respectively The remaining 63 courses vary in length, reaching a maximum of three years Approximately 300 of the 433 approved schools admit male students for training

There are 43 approved schools in Pennsylvania, 32 in Ohio, 27 in Michigan and 25 in Illinois Corresponding enrolment in schools conducted in these states are 288, 257, 220 and 185 in Illinois Of the approved schools, 387 anticipate a total of 2,039 graduates in 1950, 46 schools were unable to reply adequately to this question

Careful attention is invited to the accompanying list of approved courses The data therein are pertinent and valuable to all concerned in this important adjunct to the successful maintenance of hospital service

Application for approval of a school for medical technologists should be made to the Council on Medical Education and Hospitals of the American Medical Association, 535 North Dearborn Street, Chicago 10 Forms will be supplied for this purpose on request They should be completed by the administrator of the institution requesting this approval Inquiries regarding the registration of qualified medical technologists should be addressed to the Registry of Medical Technologists, 700 South Council Street, Muncie, Ind

APPROVED SCHOOLS FOR MEDICAL TECHNOLOGISTS

Council on Medical Education and Hospitals of the American Medical Association

NOTE Under "Tuition" the letter B indicates that a breakage fee is charged, the letter U indicates university fees Students lacking the scholastic requirements should contact the registrar of the college or university and not the hospital Those who wish to enrol in a course given by the college or university or who desire to transfer their credits should correspond with the registrar and not the hospital Asterisk (*) after name of school indicates that male as well as female students are admitted

Name and Location of School	College Affiliation	Pathologist in Charge	Minimum Prerequisite College	Length of Training in Months	Maximum Enrolment	Classes Begin	Tuition
ALABAMA							
Baptist Hospital, Birmingham	Alabama Coll †, Howard Coll †	A E Casey, M D	3 yrs	12	6	Varies	None
Carraway Methodist Hospital, Birmingham *		J A Cunningham, M D	2 yrs	12	5	JanJuly	None
Jefferson Hillman Hospital, Birmingham *	Medical College of Alabama †	R R. Kracke, M D	3 yrs	12	18	JuneSept	B
South Highlands Infirmary, Birmingham *		J A Cunningham, M D	2 yrs	12	3	JanSept	None[1]
Employees Hospital, Fairfield *		J A Cunningham, M.D	2 yrs	12 18	6	JulySept	None
Holy Name of Jesus Hospital, Gadsden *	Jacksonville State Teachers Coll †	J D Bush Jr , M D	2 yrs	12	4	JanJuly	None[1]
Mobile Infirmary, Mobile		I M Wise, M D	2 yrs	12	2	Varies	None[1]
St Margaret's Hospital, Montgomery		C R Lafferty, M D	3 yrs	12	2	MarSept	None[1]
Druid City Hospital, Tuscaloosa		J S P Beck, M D	2 yrs	12	4	Sept	None[1]

APPROVED SCHOOLS FOR MEDICAL TECHNOLOGISTS—Continued

Name and Location of School	College Affiliation	Pathologist in Charge	Minimum Prerequisite College	Length of Training in Months	Maximum Enrollment	Classes Begin	Tuition
ARIZONA							
Good Samaritan Hospital, Phoenix *	Arizona State College Tempe †	H Wood, M.D	3 yrs	12	4	July	$50
St. Joseph's Hospital Phoenix *	Arizona State College Tempe †	O O Williams, M D	3 yrs	12	5	July	$50
St Monica's Hospital Phoenix		M Rosenthal, M.D	2 yrs	12	1	Varies	None
ARKANSAS							
University Hospital Little Rock *	Univ of Arkansas School of Med †	C F Shukers M.D	2 yrs	12	6	Sept	$150
CALIFORNIA							
Herrick Memorial Hospital Berkeley *		H R Fishback M.D	Degree	12	2	FebJuly	None[1]
Childrens Hospital Los Angeles		R E Knutti M.D	Degree	12	9	Every 4 mo	None
Los Angeles County Hospital Los Angeles *		E M Butt M D	Degree	14	20	Varies	None[1]
St Vincent's Hospital Los Angeles *		J E Kahler M.D	Degree	12	4	July	B[1]
White Memorial Hospital, Los Angeles *	College of Medical Evangelists †	O B Pratt M D	3 yrs	15	20	Quarterly	$150
Collis P and Howard Huntington Memorial Hospital Pasadena		A C Foord M.D	Degree	12	0	July	B
Mercy Hospital San Diego *		D A De Santo M D	2 yrs	12-36	3	Varies	None[1]
Univ of California Med School San Francisco *	University of California Berkeley	J Hopper Jr M.D	3 yrs	12	18	FebSept	$105
Santa Barbara Cottage Hosp Santa Barbara		E L Benjamin M D.	Degree	12	2	JanJuly	None
St John's Hospital Santa Monica *		G J Hummer M.D	Degree	12	2	July	None[1]
COLORADO							
Glockner Penrose Hospital, Colorado Springs *	College of Mt St Joseph on the Ohio	E. F Geever M.D	2 yrs	12	4	Sept	None
St Francis Hospital and Sanit Colorado Springs *	Adams State Teachers Coll Alamosa	E F Geever M.D	2 yrs	12	4	Sept	None
Colorado General Hospital Denver *	University of Colorado †	E R Mugrage M D	3 yrs	12	24	Summer	U & B
Denver General Hospital Denver		Affiliated with Colorado General Hospital					
Mercy Hospital Denver *	University of Denver † Loretto Heights College †	A W Freshman M D	3 yrs	12	3	Every 3 mo	U & B
St Anthony Hospital Denver *	University of Denver † Loretto Heights College †	A. W Freshman M D	3 yrs	12	5	Every 3 mo	U & B
St Joseph's Hospital, Denver *	St Mary's College Xavier Kan	E I Dobos M D	4 yrs	12	3	July	None[1]
CONNECTICUT							
Danbury Hospital Danbury *		P T McIlroy M.D	2 yrs	18	3	Varies	None[1]
Hartford Hospital Hartford *		P T Hough M D	2 yrs	12	4	Sept	None[1]
St Francis Hospital Hartford *		L. P Hastings M.D	2 yrs	12	4	JulySept	None[1]
Middlesex Hospital Middletown *		C E. McLeod M D	2 yrs	12	2	Oct	None
New Britain General Hospital New Britain		P D Rosahn, M.D	Degree	12	5	Oct	None
Hospital of St Raphael New Haven *		R R Nesbit M D	2 yrs	12	4	Sept	None
Norwalk Hospital Norwalk *		R N Barnett M.D	2 yrs	12	2	Oct	$50
Stamford Hospital Stamford *		J G Snavely M.D	2 yrs	12	6	July	$50
Charlotte Hungerford Hospital Torrington *		L. Opper M D	Degree	12	2	Varies	None
St Mary's Hospital Waterbury *		M E Cox, M D	2 yrs	14	4	July	B
Waterbury Hospital Waterbury		J O Collins M D	2 yrs	12	3	Oct	$75
DELAWARE							
Delaware Hospital Wilmington *	University of Delaware †	J W Howard M D	2 yrs	12	4	July	$100
Memorial Hospital Wilmington *	University of Delaware †	J W Hooker M D	2 yrs	12	2	JulySept	$100
Wilmington General Hospital Wilmington *		J V Casella M.D	2 yrs	18	2	July	None
DISTRICT OF COLUMBIA							
Doctors Hospital Washington *	American University †	O B Hunter, M D	2 yrs	12	6	Every 3 mo	None[1]
Freedmen's Hospital Washington *	Howard University	R E Kelso M.D	3 yrs	24	8	Sept	$75 125
Garfield Memorial Hospital Washington *		E C Rice M.D	2 yrs	12	10	FebSept	None
Georgetown University Hospital Washington	Georgetown University	C F Geschickter M D	Degree	12 24	15	Sept	U & B
George Washington Univ Hosp Washington	George Washington Univ Med School	T M Peery M.D	2 yrs	12	10	FebSept	None
Providence Hospital Washington		H H Leffler M.D	2 yrs	12	4	Varies	None[1]
Sibley Memorial Hospital Washington *	American University †	O B Hunter M D	2 yrs	12	6	Every 3 mo	None[1]
FLORIDA							
Florida State Hospital, Chattahoochee *	Florida State University †	E H Ruediger M.D	2 yrs	12	5	JanSept	None
Duval Medical Center Jacksonville	Florida State University †	L Y Dyrenforth M.D	2 yrs	12	4	JanJuly	None
St Luke's Hospital Jacksonville *		B J McCloskey M.D	2 yrs	12	5	Sept	None
St Vincent's Hospital Jacksonville		N A. Murray M.D	Degree	12	4	July	None[1]
Jackson Memorial Hospital, Miami *		P R Rezek M D	Degree	12	9	Monthly	None
Escambia General Hospital Pensacola		G V Squires M D	2 yrs	12	2	Varies	None
GEORGIA							
Crawford W Long Memorial Hospital Atlanta *		D Ayer M D	2 yrs	12	4	Varies	None
Georgia Baptist Hospital Atlanta		J Funke M D	2 yrs	12	2	Varies	None
Grady Memorial Hospital Atlanta *	Emory University	W Sheldon M D	2 yrs	13	13	Varies	None
Piedmont Hospital Atlanta		W B Matthews M.D	Degree	12	4	JuneSept	None
St. Joseph's Infirmary Atlanta		W B Matthews M D	Degree	12	4	JuneSept	None
University Hospital Augusta *	Univ of Georgia School of Medicine	W L Shepeard M.D	2 yrs	12	2	Sept	$100B
Veterans Admin. Hospital, Chamblee *	Emory University	L N Foster M.D	2 yrs	12	6	Varies	None
Columbus City Hospital Columbus *		A R Monaco M.D	2 yrs	12	4	Varies	None[1]
Emory University Hospital Emory University *	Emory University	W H Sheldon M D	2 yrs	12	10	JanSept	None
St Joseph's Hospital Savannah		L. Howard M.D	2 yrs	12	6	Oct	None[1]
IDAHO							
St Luke's Hospital Boise *		J McCarter M D	2 yrs	12		Varies	None
ILLINOIS							
Copley Memorial Hospital Aurora *	Aurora College †	C C Mason M D	3 yrs	12	3	Varies	B
St Joseph's Hospital Bloomington *	Illinois State Normal DePaul	B Markowitz, M D	2 yrs	12	6	Varies	$[illegible]
Alexian Bros Hospital Chicago *		J P Simonds M D	2 yrs	12	3	Varies	$50
City of Chicago Municipal Tuberculosis Sanitarium Chicago *	Roosevelt College †	H C Sweany M D	2 yrs	15	16	Every 3 mo	B
Grant Hospital Chicago		C C Mason M D	2 yrs	12 18	3	JanJuneSept	$50
Michael Reese Hospital Chicago *	Roosevelt College †	O Saphir M.D	2 yrs	18	18	Every 2 mo	$100
Mount Sinai Hospital Chicago *	Roosevelt College †	I Davidsohn M D	2 yrs	12 18	15	Monthly	$100
Northwestern University Medical School Chicago	Northwestern Univ Medical School †	O E Hepler M D	2 yrs	12 20	12	Monthly	$50-100

APPROVED SCHOOLS FOR MEDICAL TECHNOLOGISTS—Continued

Name and Location of School	College Affiliation	Pathologist in Charge	Minimum Prerequisite College	Length of Training in Months	Maximum Enrolment	Classes Begin	Tuition
ILLINOIS—Continued							
Norwegian American Hospital, Chicago *		A Learner, M D	2 yrs	12 18	4	Monthly	$100 yr
Provident Hospital, Chicago *			2 yrs	18	7	Monthly	$200
Ravenswood Hospital, Chicago *		H I Brown, M D	2 yrs	12	6	Varies	None
St Bernard's Hospital, Chicago *	Loyola University †	C S Hagerty, M D	2 yrs	12	8	Sept	$200 B
St Mary of Nazareth Hospital, Chicago		E W Thurston M D	2 yrs	12	8	Varies	$50 B
Wesley Memorial Hospital, Chicago *	Northwestern University †	T C Laipply, M D	2 yrs	12	24	Monthly	$175
Evanston Hospital, Evanston	Northwestern University	J G McCarter M D	2 yrs	12	6	JanJuly	$50
St Francis Hospital, Evanston *		J W Henry, M D	2 yrs	12	6	Every 3 mo	$50
Methodist Hospital of Central Illinois, Peoria		D O Manshardt, M D	2 yrs	12	4	Varies	$50 B
St Francis Hospital, Peoria *		J E Kraus, M D	2 yrs	12	6	Sept	$100 B
St Mary's Hospital Quincy *	Quincy College †	F A Mayner, M D	2 yrs	12	4	Sept	$100
Rockford Memorial Hospital Rockford *		M O Alexander, M D	2 yrs	12 16	4	Varies	None
St Anthony's Hospital, Rockford *		A R K Matthews, M D	2 yrs	12	4	FebJuneSept	$50
Swedish American Hospital Rockford *		G B Kramer, M D	2 yrs	12	3	JanSept	None
Memorial Hospital, Springfield *		A Vass, M D	2 yrs	12	4	FebSept	$100
St John's Hospital, Springfield	Quincy College †	H M Steen, M D	2 yrs	12	12	Sept	$50
St Therese's Hospital, Waukegan	DePaul University, Chicago	G J Rukstinat, M D	2 yrs	12	4	Sept	$100 B
INDIANA							
Protestant Deaconess Hospital, Evansville *	Evansville College †	F F Mills, M D	2 yrs	12	4	Varies	
St Mary's Hospital, Evansville *	Evansville College †	F W Porro, M D	2 yrs	12	6	Fall	$150
St Joseph Hospital Fort Wayne *	St Francis College †	S M Rabson, M D	2 yrs	12	5	June	$125 B
Indiana University Med School, Indianapolis *	Indiana University, Bloomington †	J L Arbogast, M D	3 yrs	12	24	June	U
Methodist Hospital Indianapolis	Butler University † Franklin Coll †	L H Hoyt, M D	Degree	12	6	Varies	$50
St Elizabeth Hospital Lafayette *		J M McFadden, M D	2 yrs	12	7	Oct	$100 B
South Bend Medical Foundation (Memorial and St Joseph Hospitals), South Bend *		A S Giordano, M D	2 yrs	18	2	JanJuly	$125
IOWA							
Mercy Hospital, Cedar Rapids		R E Weland, M D	2 yrs	12	5	JanJuly	None
St Luke's Methodist Hospital Cedar Rapids *		F C Bauer Jr M D	2 yrs	12	4	Quarterly	None
Mercy Hospital Council Bluffs *		M S Rubnitz, M D	2 yrs	12	4	Every 6 mo	B
Mercy Hospital, Des Moines *		F C Coleman, M D	2 yrs	12	3	July	None
St Joseph Mercy Hospital, Dubuque *		E T Thorsness, M D	2 yrs	12	6	Sept	None
St Joseph Mercy Hospital, Sioux City *		E A Fullgrabe, M.D	2 yrs	12	4	Sept	None
KANSAS							
Bethany Hospital, Kansas City		W W Summerville M D	2 yrs	12	6	Monthly	None [1]
Providence Hospital, Kansas City *	St Mary's College Xavier, Kan	V B Buhler, M.D	Degree	12	3	July	None [1]
University of Kansas Med Center Kansas City *	University of Kansas	I H Leger, M D	Degree	12	24	July	None [1]
Lattimore Fink Laboratories (Christ's, St Francis and Stormont Hospitals) Topeka	Washburn University †	J L Lattimore, M D	2 yrs	12	6	JuneSept	None [1]
Veterans Admin Hospital Wadsworth *		C J Weber, M D	2 yrs	12	5	July	None
St Francis Hospital Wichita	Wichita University †	W P Callahan Jr M D	2 yrs	12	10	FebSept	$150
Wichita Hospital, Wichita *	Sacred Heart Junior College	L C Murphy, M D	2 yrs	12	6	JuneSept	B
KENTUCKY							
Good Samaritan Hospital Lexington *	University of Kentucky †	F S Maxwell, M D	3 yrs	12	30	Varies	U & B
St Joseph Hospital, Lexington	Nazareth College Louisville	E S Maxwell, M D	2 yrs	12	5	JuneSept	$150
Kentucky State Department of Health School of Laboratory Technic, Louisville *		I H South, M D	2 yrs	12	32	JuneSept	$300
Norton Memorial Infirmary, Louisville *		M L Barnes, M D	2 yrs	12	8	Varies	$150
St Anthony Hospital Louisville		J D Allen M D	2 yrs	12	5	June	None
St Joseph Infirmary Louisville	Nazareth College	S H Black, M D	3½ yrs	12	8	JulySept	$75
SS Mary and Elizabeth Hospital, Louisville	Nazareth College †	S H Black, M D	2 yrs	12	4	Sept	$120
LOUISIANA							
St Francis Sanitarium Monroe *		N Klaun, M D	2 yrs	12	6	JanSept	None
Charity Hospital of Louisiana, New Orleans *		F S Moss, M D	Degree	12	26	Monthly	None
Hotel Dieu, Sisters' Hospital *	Loyola University †	R M Hartwell M D	3 yrs	12	7	June	None
Mercy Hospital Soniat Memorial, New Orleans *	Loyola University	G H Hauser, M D	Degree	12	10	Varies	None
Southern Baptist Hospital New Orleans		E H Lawson, M D	2 yrs	14	8	Quarterly	None [1]
Touro Infirmary New Orleans *	Loyola University	A J Hertzog, M D	3 yrs	12	4	June	None
U S Marine Hospital, New Orleans *	Loyola University	L L Swan, M D	2 yrs	12	4	Sept	None [1]
T F Schumpert Memorial Sanit, Shreveport *	Northwestern State College †	W P Butler, M D	2 yrs	12	8	Varies	$50
Shreveport Charity Hospital, Shreveport *	Northwestern State College †	W R Mathews, M D	2 yrs	12	4	JanSept	None
MAINE							
Eastern Maine General Hospital, Bangor *	University of Maine †	R O Wadsworth, M D	3 yrs	18	6	July	$150 B
Central Maine General Hospital, Lewiston	Colby College †, Univ of Maine †	Daniel Rock, M D	2 yrs	12	10	Varies	$160
Maine General Hospital, Portland		J E Porter, M D	2 yrs	12	8	July	None
MARYLAND							
Mercy Hospital, Baltimore	Mount St Agnes College †	H T Collenberg, M D	2 yrs	24	20	Sept	U & B
St Joseph's Hospital Baltimore *	Notre Dame College	H L Wollenweber, M D	2 yrs	12	6	Varies	B
Union Memorial Hospital, Baltimore *		W C Merkel, M D	2 yrs	12	5	AprSept	$150
MASSACHUSETTS							
Beverly Hospital, Beverly		D E Brown, M D	2 yrs	12	2	Sept	None
Faulkner Hospital, Boston *	Simmons College	P M LeCompte M D	3 yrs	12	2	JanSept	None
Massachusetts Memorial Hospitals, Boston	Simmons College †	C S Keefer, M D	2 yrs	12	12	Varies	None
New England Deaconess Hospital, Boston		S Warren, M D	2 yrs	12 16	4	JuneSept	None
New England Hospital for Women and Children, Boston	Colby Junior College †	G L Muller M D	2 yrs	12	5	JulySept	B
Truesdale Hospital, Fall River *		W Freeman, M D	2 yrs	12	4	Quarterly	None
Burbank Hospital, Fitchburg *		H J Sparling Jr, M D	2 yrs	12	2	July	None
Holyoke Hospital, Holyoke *	University of Massachusetts †	J S Grewal M D	Degree	12	6	July	None [1]
Lawrence General Hospital, Lawrence *		L S Jolliffe, M.D	2 yrs	12	8	July	None
St Luke's Hospital, New Bedford		V Klarsis, M D	2 yrs	12	2	JanJuly	B
Newton Wellesley Hospital, Newton Lower Falls *		D Skinner, M D	2 yrs	12	2	July	None
St Luke's Hospital, Pittsfield		E F Joslin, M D	2 yrs	15	2	JanSept	B
Quincy City Hospital, Quincy *		O T Pollak, M D	Degree	18	6	Every 3 mo	None

APPROVED SCHOOLS FOR MEDICAL TECHNOLOGISTS—Continued

Name and Location of School	College Affiliation	Pathologist in Charge	Minimum Prerequisite College	Length of Training in Months	Maximum Enrolment	Classes Begin	Tuition
MASSACHUSETTS—Continued							
Salem Hospital Salem *		D A Nickerson M.D	2 yrs	12	4	Sept	None
Mercy Hospital Springfield		J Rini M.D	2 yrs	12	6	Quarterly	None
Taunton State Hospital Taunton *		C O VanWinkle M.D	2 yrs	12	2	July	None
Tewksbury State Hospital and Infirmary Tewksbury *		H S Glidden M D	2 yrs	12	2	Varies	None
Worcester City Hospital Worcester *		R H Goodale M D	2 yrs	12	6	Every 2 mo	None
Worcester State Hospital Worcester *		W Jetter M.D	2 yrs	12	4	JanJuly	None
MICHIGAN							
University Hospital Ann Arbor *	University of Michigan †	F H Bethell M D	3 yrs	12	16	June	U
Leila Y Post Montgomery Hosp Battle Creek *	Michigan State College	G W Schelm M D	Degree	12	4	July	None[1]
Mercy Hospital Bay City *	Junior College	W G Gamble Jr M D	2 yrs	12	3	Varies	None
Veterans Admin Hospital Dearborn *	Wayne University †	J L Chason M D	3 yrs	12	3	July	None
Chas Godwin Jennings Hospital Detroit		M E. Maun M.D	2 yrs	12	2	Varies	$125
City of Detroit Receiving Hospital Detroit	Wayne University †	O A Brines M D	3 yrs	12	12	July	$100
Detroit Memorial Hospital, Detroit	Wayne Univ † Holy Name Coll †	H J Linn M D	2 yrs	12	8	June	$100
Evangelical Deaconess Hospital, Detroit	Wayne University †	M E Maun M.D	2 yrs	12	4	JuneSept	$50
Grace Hospital Detroit	Wayne Univ † Mich State Coll.†	C I Owen M D	2 yrs	12	10	Varies	None
Henry Ford Hospital Detroit	Wayne University †	F W Hartman M D	Degree	18	18	Monthly	None
Mount Carmel Mercy Hospital Detroit	Mercy College †	L W Gardner M D	3 yrs	12	12	Sept	$150
Providence Hospital Detroit *	Wayne Univ † Sienna Heights Coll †	D H Kaump M D	2 yrs	12	12	Varies	$100
Woman s Hospital Detroit	Wayne Univ † Mich State Coll †	D C Beaver M.D	3 yrs	12	10	July	$100
Wayne County Gen Hosp and Infirmary Eloise	Wayne Univ † Univ of Detroit † Michigan State College †	S E Gould M D	Degree	12	10	Quarterly	None
Hurley Hospital Flint *	Michigan State College †	R J Jermstad, M D	3 yrs	12	5	JulyOct	None
St Joseph s Hospital Flint *	Michigan State College †	G R Backus M D	3 yrs	12	2	July	None
Blodgett Memorial Hospital Grand Rapids *	Michigan State College †	C A Payne M D	3 yrs	12	4	July	None[1]
Butterworth Hospital, Grand Rapids *	Michigan State Coll † Calvin Coll †	P A Van Pernis M.D	2 yrs	12	6	JulySept	None[1]
St Mary s Hospital Grand Rapids *	Aquinas College †	E F Ducey M.D	2 yrs	15	3	JuneSept	None
Borgess Hospital, Kalamazoo *	Western Michigan College † Michigan State College † Nazareth College †	A DeGroat M.D	2 yrs	12	4	July	B
Bronson Methodist Hospital Kalamazoo	Western Michigan College † Michigan State College †	H R Prentice M D	2 yrs	12	5	July	B
Edward W Sparrow Hospital Lansing	Michigan State College †	C E Black M D	3 yrs	12	6	Varies	None
Michigan Department of Health Bureau of Laboratories, Lansing *		H E Cope M D	3 yrs	12	45	Varies	None
Hackley Hospital Muskegon *		H L Clark M D	2 yrs	12	5	Sept	None
Port Huron Hospital Port Huron *		L E Dickelmann M D	2 yrs	12	3	Sept	None
Saginaw General Hospital Saginaw *	Michigan State College †	R Bucklin M D	2 yrs	12	6	JanJuly	None[1]
Wyandotte General Hospital Wyandotte *		W A Stryker M D	3 yrs	12	2	July	$100
MINNESOTA							
St Luke s Hospital Duluth	Mich State Coll.† Hamline Univ †	A H Wells M D	2 yrs	18	12	FebJuly	None
St Mary s Hospital Duluth	College of St Scholastica †	W V Knoll M D	2 yrs	12	13	Monthly	$75B
Minneapolis General Hospital Minneapolis *		S S Barron M D	Degree	12	18	Varies	None
Swedish Hospital Minneapolis	Gustavus Adolphus College †	A R Jay M D	2 yrs	12	8	JuneOct	$125
University of Minnesota Hospital Minneapolis *	University of Minnesota †	G T Evans M D	3 yrs	12	60	Quarterly	U
St Cloud Hospital St Cloud *		P E Stangl, M.D	2 yrs	12 18	10	Varies	$75
Ancker Hospital St Paul *		J F Noble M D	3 yrs	12	6	July	None
Charles T Miller Hospital St Paul *	Macalester College †	K. Ikeda M.D	3 yrs	12	12	Varies	None
MISSISSIPPI							
Mississippi Baptist Hospital Jackson *		F G Bratley M D	2 yrs	12	4	Varies	None
Mercy Hospital Street Memorial Vicksburg *	Mississippi State College †	R H Fenstermacher M D	2 yrs	12	10	Varies	B
MISSOURI							
St Louis County Hospital Clayton *	LeClerc College †	W G Brown M.D	3 yrs	12	9	Quarterly	None
Kansas City General Hosp No 1 Kansas City *		V B Buhler M D	2 yrs	18	18	Varies	None[1]
Kansas City General Hosp No 2 Kansas City *		V B Buhler M D	2 yrs	18	4	Varies	None[1]
Menorah Hospital, Kansas City *		H Cohen M D	2 yrs	12	5	Varies	None[1]
Research Hospital Kansas City	Missouri Valley College	H K B Allebach M D	2 yrs	12	10	Monthly	None[1]
St Joseph's Hospital Kansas City		R W Kerr, M D	Degree	12	17	Monthly	B[1]
St Luke s Hospital Kansas City		F C Helwig M D	2 yrs	15	12	Monthly	None[1]
St Mary s Hospital Kansas City *		A E Upshur M D	Degree	12	6	Varies	$25
Trinity Lutheran Hospital Kansas City		J H Hill M D	Degree	12	2	Varies	None[1]
Barnes Hospital St Louis *	Washington Univ School of Medicine	G T Dammin M D	2 yrs	12	12	FebSept	$100
Homer G Phillips Hospital, St Louis *		J A Saxton Jr M D	2 yrs	18-24	5	JanSept	None
Missouri Baptist Hospital St Louis *		W E B Hall M D	2 yrs	12	4	JanJuly	None
St Anthony s Hospital St Louis	Marquette University †	B C Portuondo M D	2 yrs	12	2	Sept	None
St Louis City Hospital St Louis *		J A Saxton Jr M D	2 yrs	15	8	Quarterly	None
St Louis Univ School of Nursing St Louis *	St Louis University †	G O Broun M D	3 yrs	12	15	Sept	$175
Burge Hospital, Springfield *	Drury College †	E B Hanan M D	2 yrs	12	3	JuneSept	$25
MONTANA							
St Vincent's Hospital Billings *	Montana State College † Montana State University † Carroll Coll †	M E Martin M.D	2 yrs	12	6	Sept	B
Murray Hospital Butte *	University of Montana † Montana State College †	R F Peterson M D	3 yrs	12	3	June	None
Columbus Hospital Great Falls *	College of Great Falls †	P J Gerity M D	2 yrs	12	4	JuneSept	None
Montana Deaconess Hospital, Great Falls *	Montana State Coll † Coll of Education †	E Hildebrand M D	3 yrs	12	5	JanJuly	None
NEBRASKA							
Bryan Memorial Hospital Lincoln *	Nebraska Wesleyan University †	F H Tanner M D	2 yrs	12	8	Varies	B
Lincoln General Hospital Lincoln *		F H Tanner M D	2 yrs	12	6	Quarterly	None
Bishop Clarkson Memorial Hospital Omaha *		M E Foster M D	2 yrs	12	8	Varies	$25
Creighton Memorial St Joseph's Hosp Omaha*	Creighton University †	B C Russum M D	3 yrs	12	9	Quarterly	$100
University of Nebraska Hospital, Omaha *	Univ. of Nebraska College of Med	J P Tollman M D	2 yrs	12	8	JuneAug	$50
NEVADA							
St Mary s Hospital Reno	University of Nevada †	L Parsons M D	3 yrs	18	2	Varies	None[1]

APPROVED SCHOOLS FOR MEDICAL TECHNOLOGISTS—Continued

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NEW HAMPSHIRE							
Concord Hospital Concord *	University of New Hampshire †	J H Park, M D	2 yrs	12	2	Sept	None
Mary Hitchcock Memorial Hospital, Hanover	Colby Junior College †, State Univ †	J B Holyoke, M D	2 yrs	12	9	Quarterly	B
Elliott Hospital Manchester *	University of New Hampshire †	S M Brooks M D	2 yrs	12	2	July	B
Notre Dame de Lourdes Hospital Manchester *	Rivier College †	R F Biron, M D	2 yrs	15	2	JanJuly	$100
Sacred Heart Hospital Manchester		R E Biron, M D	2 yrs	12	2	Varies	None
NEW JERSEY							
Atlantic City Hospital, Atlantic City *		F W Konzelmann, M D	2 yrs	14	6	July	$100
West Jersey Hospital, Camden *		W R Platt, M D	2 yrs	12	8	Quarterly	$150
Englewood Hospital, Englewood		I A Gaspar, M D	2 yrs	12	4	Varies	None
Hospital of St Barnabas and for Women and Children Newark *	Rutgers University †	W G Bernhard, M D	2 yrs	12	4	JulySept	U
Newark Beth Israel Hospital, Newark *	Rutgers University †	L M Goldman, M D	3 yrs	12	10	Varies	$20
Presbyterian Hospital, Newark *	Rutgers University †	S A Goldberg M D	3 yrs	12	4	Fall	U
St Michael's Hospital Newark *		S J Rose M D	2 yrs	12	2	Sept	$150
Paterson General Hospital, Paterson *	Fairleigh Dickinson College †	A H Davis, M D	2 yrs	12	6	Quarterly	None
Mercer Hospital Trenton *		T K Rathmell, M D	2 yrs	18	3	Sept	$150
NEW YORK							
Bender School of Medical Technology Albany *	Union University †	J J Clemmer, M D	2 yrs	18	15	Sept	$200
Binghamton City Hospital, Binghamton *		V W Bergstrom M D	2 yrs	12	5	Quarterly	None
Jewish Hospital Brooklyn *		D M Grayzel, M D	Degree	18	6	Every 3 mo	None
Prospect Heights Hospital Brooklyn *		S H Polayes, M D	2 yrs	12	8	JanJuly	None
St Mary's Hospital Brooklyn *		W Moltrier Jr, M D	2 yrs	12	8	MarSept	B
Buffalo General Hospital Buffalo *	University of Buffalo †	S L Vaughan, M D	2 yrs	12	26	Varies	$50
Edward J Meyer Memorial Hospital Buffalo *	University of Buffalo †	B F Hauenstein, M D	2 yrs	12	15	Varies	None
Millard Fillmore Hospital Buffalo *	University of Buffalo †	A Y Postoloff M D	2 yrs	12	6	Varies	None
Arnot Ogden Memorial Hospital Elmira *		S F Cohen M D	2 yrs	12	4	Varies	None
St Joseph's Hospital, Elmira	Nazareth College †	J A Mitchell M D	2 yrs	12	6	JuneSept	$100
Flushing Hospital, Flushing *		J Garrow, M D	2 yrs	12 15	4	JanJuly	None
Meadowbrook Hospital Hempstead *	Adelphi College	T J Curphey, M D	2 yrs	18	3	Every 6 mo	None
Mary Immaculate Hospital Jamaica *		M Bevilacqua, M D	Degree	12	4	Oct	$150
St John's Long Island City Hospital Long Island City *		J Werne, M D	Degree	12 24	3	JanJuly	None
Montefiore Hospital for Chronic Diseases, New York City *	New York University	H M Zimmerman M D	Degree	12	6	Sept	None
St Clare's Hospital New York City *		J M Ravid, M D	2 yrs	18	8	Sept	B
United Hospital Port Chester *		M M Loder, M D	2 yrs	12 24	2	July	None[1]
Rochester General Hospital Rochester *		M G Bohrod, M D	Degree	18	12	FebSept	$100
St Mary's Hospital, Rochester *		J Adler M D	2 yrs	12	4	Varies	None
Ellis Hospital Schenectady *		F Kellert M D	2 yrs	12 18	8	Varies	$100
U S Marine Hospital Staten Island *	Wagner College †	L H Sophian M D	3½ yrs	12	6	Quarterly	None
Samaritan Hospital Troy *	Russell Sage College †	C M Alexander M D	2 yrs	12	8	Sept	None
St John's Riverside Hospital, Yonkers *		C E DeAngelis, M D	2 yrs	12	3	Varies	None
NORTH CAROLINA							
Charlotte Memorial Hospital Charlotte	Queen's College †	P Kimmelstiel M D	4 yrs	12	6	Aug	B
Mercy Hospital Charlotte *	Sacred Heart Junior College	T Byrnes M D	2 yrs	15	4	Aug	None
Duke Hospital Durham	Duke University	D S Martin, M D	2 yrs	18	40	Sept	B
Watts Hospital Durham *	University of North Carolina	J U Gunter M D	2 yrs	12	8	JanJuly	None
North Carolina Baptist Hosp Winston Salem *	Salem College † Wake Forest Coll †	C C Carpenter M D	3 yrs	12	10	June	$300
NORTH DAKOTA							
St Alexius Hospital, Bismarck		L W Larson, M D	2 yrs	12	4	Sept	B
Grand Forks Deaconess Hospital, Grand Forks *	University of North Dakota †	J D Cardy, M D	2 yrs	18	6	Sept	None
Trinity Hospital Minot *		P J Breslich M D	2 yrs	12	5	Sept	$25
OHIO							
Children's Hospital Akron *		M R Baker M D	2 yrs	12	2	JanJuly	None[1]
City Hospital Akron *		L Catron M D	2 yrs	12	8	Varies	None[1]
People's Hospital Akron		G R Dochat M D	2 yrs	12	6	July	None
St Thomas Hospital Akron		G G Proskauer, M D	2 yrs	12 15	8	July	None[1]
Aultman Hospital, Canton *		D G Henderson, M D	2 yrs	12	4	JanJuly	$100
Bethesda Hospital Cincinnati *	University of Cincinnati †	R J Davis M D	3 yrs	12	8	July	$250
Christ Hospital Cincinnati *	University of Cincinnati †	J W Leichliter, M D	3 yrs	12	4	July	$125B
Good Samaritan Hospital Cincinnati	Coll of Mt St Joseph on the Ohio †	W M Germain, M D	3 yrs	12	5	Sept	$300
Jewish Hospital Cincinnati *	University of Cincinnati †	P Wasserman M D	2 yrs	12	4	JulyOct	$125
Our Lady of Mercy Hospital, Cincinnati *	Our Lady of Cincinnati College	K F Laude, M D	Degree	12	8	Varies	U
City Hospital Cleveland *	Western Reserve University †	T D Kinney M D	2 yrs	30	25	Varies	U
Cleveland Clinic Hospital, Cleveland			2 yrs	18	12	JanJuly	$90
Mount Sinai Hospital, Cleveland	Western Reserve University †	B S Kline, M D	2 yrs	12	12	Monthly	$100
University Hospitals Cleveland *	Western Reserve University †	H Z Lund M D	2 yrs	12	10	Monthly	$100
Mount Carmel Hospital, Columbus *	Ohio University † College of St Mary of Springs †	H B Davidson, M D	2 yrs	12	12	FebJuly	
Ohio State University Hospital, Columbus *	Ohio State University †	H I Reinhart M D	3 yrs	12	40	Quarterly	U
Miami Valley Hospital, Dayton *	University of Dayton †	M Oostling M D	2 yrs	13	6	July	None
St Elizabeth Hospital, Dayton *	University of Dayton †	W Abramson M D	2 yrs	12	4	Sept	U
Veterans Admin Center Dayton *	University of Dayton	C Raven M D	3 yrs	12	5	Varies	None
Huron Road Hospital East Cleveland		F Goodsitt M D	2 yrs	12	12	JanJuly	$50
Mercy Hospital, Hamilton *	Our Lady of Cincinnati College †	K F Laude M D	3 yrs	12	6	FebJuly	U & B
Lakewood Hospital, Lakewood	Baldwin Wallace College †	O Fitzen, M D	2 yrs	12	6	Varies	$100
St Rita's Hospital, Lima *		C L Blumstein M D	2 yrs	12	3	JuneSept	None
Springfield City Hospital, Springfield *		M P Hunter, M D	2 yrs	12	7	Varies	None
Flower Hospital Toledo *	Toledo University	V F Rhoden, M D	2 yrs	12	3	July	None[1]
Maumee Valley Hospital, Toledo *	Toledo University	G T Rich, M D	2 yrs	12	4	Quarterly	B
Mercy Hospital Toledo *	University of Toledo †	J B Rucker, M D	2 yrs	12	4	JuneSept	None
Riverside Hospital, Toledo *		D C Wilson, M D	Degree	12	2	Varies	None[1]
St Vincent's Hospital, Toledo *	University of Toledo †	M F Vidoli, M D	3 yrs	12	6	JanJune	None
Toledo Hospital Toledo *	University of Toledo †	B Steinberg M D	2 yrs	12	8	FebSept	None
St Elizabeth's Hospital, Youngstown	Youngstown College †	W D Collier, M D	2 yrs	12	4	Quarterly	None
Youngstown Hospital, Youngstown *	Youngstown College †	H K Giffen M D	2 yrs	12	15	MarOct	$50

APPROVED SCHOOLS FOR MEDICAL TECHNOLOGISTS—Continued

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OKLAHOMA							
Mercy Hospital Oklahoma City	University of Oklahoma †	H A Stout M D	2 yrs	12	3	Quarterly	None[1]
St Anthony Hospital Oklahoma City	Univ of Oklahoma † Agricultural and Mechanical College †	H Jeter M.D	Degree	12	8	Varies	B[1]
University Hospitals Oklahoma City *	Univ of Oklahoma Univ of Oklahoma School of Medicine	L L Conrad M.D	Degree	12	12	Every 3 mo	None
Wesley Hospital Oklahoma City *		W F Keller M D	Degree	12	4	Varies	None
St John's Hospital Tulsa *	University of Tulsa †	E E Palik M D	Degree	12	8	Varies	None
OREGON							
Sacred Heart General Hospital Eugene		E D Furrer M D	2 yrs	12	5	Varies	None
Emanuel Hospital Portland		H H. Foskett M D	2 yrs	12	2	Varies	B
Good Samaritan Hospital Portland *		W L Lehman M D	2 yrs	12	9	Varies	B
Portland Sanitarium and Hospital Portland *	University of Oregon Medical School	W C Hunter, M D	2 yrs	12	2	Varies	None
St Vincent's Hospital Portland *		F R Menne M D	Degree	12	5	Sept	$10-25
University of Oregon Medical School Hospitals and Clinics Portland *	University of Oregon Medical School	R D Grondahl M D	2 yrs	12	18	Every 6 mo	None
PENNSYLVANIA							
Abington Memorial Hospital Abington *		J Elman M D	2 yrs	12	12	JulySept	None
Allentown Hospital Allentown	Cedar Crest College † Moravian College for Women †	J J Wenner M D	2 yrs	12	8	June	$75
Sacred Heart Hospital Allentown	Cedar Crest College Moravian College for Women	D E Stader M.D	3 yrs	12	8	July	$90
St Luke's Hospital Bethlehem	Moravian College for Women †	T A Cope Jr M D	2 yrs	12	4	July	$100
Bryn Mawr Hospital Bryn Mawr *		M M. Strumia M.D	2 yrs	15	8	Every 3 mo	B
Geo F Geisinger Memorial Hospital Danville	Bucknell University †	H F Hunt M D	2 yrs	12	6	FebJuly	$400
Fitzgerald Mercy Hospital Darby		A. Valdes Dapena M.D	2 yrs	15	4	Monthly	B
Easton Hospital Easton *	Moravian College for Women †	N W Larkum M D	2 yrs	12 24	2	July	None
St Vincent's Hospital Erie *		R B Eisenberg M D	2 yrs	12	7	July	None
Harrisburg Hospital, Harrisburg *		G R Moffitt M D	2 yrs	12	10	Every 2 mo	None
Harrisburg Polyclinic Hospital Harrisburg		J S Forrester M D	2 yrs	12	4	Sept	$100
Hazleton State Hospital Hazleton *	Pennsylvania State College	J Foldes M D	2 yrs	12	6	Sept	B
Mercy Hospital Johnstown *	Mount Aloysius Junior College	H B Anderson M D	2 yrs	12	4	Sept	B
Nesbitt Memorial Hospital Kingston		T Baker M D	2 yrs	12	2	SprFall	B
Lancaster General Hospital Lancaster *		G J Heid Jr M D	2 yrs	18	4	Sept	$200 B
St Joseph's Hospital Lancaster		E E Ziegler M D	2 yrs	12 18	6	Varies	B
Germanton Dispensary and Hosp Philadelphia	Jefferson Medical College	F B Lynch Jr M.D	2 yrs	12	5	Oct	$200
Hahnemann Hospital Philadelphia *	Hahnemann Medical College †	J F Gregory M D	2 yrs	24	12	Sept	$100 B
Jefferson Medical College Hospital Philadelphia	Jefferson Medical College	C J Bucher M.D	2 yrs.	18	23	MarSept	$100 B
Jewish Hospital Philadelphia *		C Weiss M D	2 yrs	12	6	Quarterly	$100
Lankenau Hospital Philadelphia		C E Brown M D	2 yrs	12	4	Sept	$100
Mount Sinai Hospital Philadelphia	Hahnemann Medical College	D R Meranze M D	2 yrs	18	3	Varies	$175 B
Nazareth Hospital Philadelphia		E F Ciccone M D	2 yrs	12	3	MarSept	$50 B
Pennsylvania Hospital Philadelphia *		A. R Crane M D	2 yrs	12	15	Monthly	$100
Pepper Laboratory of Clinical Medicine University of Pennsylvania Philadelphia	University of Pennsylvania	J H Austin M D	2 yrs	21	6	Monthly	$200
Philadelphia General Hospital Philadelphia *	Pennsylvania State College	J H Clark M D	2 yrs	12	8	Quarterly	None
Presbyterian Hospital Philadelphia *	University of Pennsylvania	R. P Custer M D	2 yrs	18	3	Varies	$150
St Agnes Hospital Philadelphia *		J E Imbriglia M D	2 yrs	18	7	Monthly	B
St Joseph's Hospital Philadelphia *		D R Morgan M D	2 yrs	12	2	FebSept	$150 B
Temple University Hospital Philadelphia *	Temple University †	E E Aegerter M D	2 yrs	22	32	FebSept	$200
Allegheny General Hospital Pittsburgh *		R C Grauer M D	Degree	12	4	Sept	B
Montefiore Hospital, Pittsburgh *		K. Yardumian M D	2 yrs	12	10	JulySept	$100 B
Pottsville Hospital Pottsville *		R E Hobbs M D	2 yrs.	12 24	3	Varies	None
Community General Hospital Reading *		H S Cook M D	2 yrs	18-24	4	Varies	None
Reading Hospital Reading	Albright College †	W P Jennings M D	2 yrs	12	4	Sept	B
St Joseph's Hospital Reading *		G P DesJardins M.D	2 yrs	12	4	Varies	$150
Robert Packer Hospital Sayre *	Elmira College	C H DeWan M D	2 yrs	12	4	Aug	None
Moses Taylor Hospital Scranton		C J Mattas M D	2 yrs	12	4	June	None
Scranton State Hospital Scranton *		F P Swartz, M D	2 yrs	18	8	JanJuly	None
Christian H Buhl Hospital, Sharon *	Thiel College †	P C Gillette M.D	2 yrs	12	4	Varies	$50
Allegheny Valley Hospital Tarentum *		S J C Miller M D	2 yrs	24	6	July	B[1]
Wilkes Barre General Hospital Wilkes Barre *		C R Tuthill M D	2 yrs	12	5	Varies	B
Williamsport Hospital Williamsport *	Bucknell Univ † Lycoming Coll †	M G Colvin M D	2 yrs	12	4	JulySept	None
RHODE ISLAND							
Rhode Island Hospital Providence		H Fanger M.D	2 yrs	24	6	Varies	None[1]
SOUTH CAROLINA							
Medical College of the State of South Carolina Charleston *		D W Ellis M D	2 yrs	15	20	Every 6 wk	B
McLeod Infirmary Florence		J W McMeans M D	Degree	12	2	Varies	None[1]
SOUTH DAKOTA							
St. Luke's Hospital Aberdeen *		A J Miller M D	2 yrs	12	4	July	None[1]
McKennan Hospital Sioux Falls *	University of South Dakota †	A Myrabo M D	2 yrs	12	4	FebSept	$50 B
Sioux Valley Hospital, Sioux Falls *	University of South Dakota †	J Y Clarke M D	2 yrs	12	5	JulySept	$70 B
Sacred Heart Hospital Yankton	University of South Dakota †	J C Ohlmacher M D	2 yrs	12	2	JuneSept	$54 B
TENNESSEE							
Baroness Erlanger Hospital Chattanooga *	University of Chattanooga †	J W Adams Jr M D	2 yrs	12	8	Varies	None
Knoxville General Hospital Knoxville		R H Monger M.D	2 yrs	12	4	JanJuly	B
John Gaston Hospital Memphis *	University of Tennessee †	D H. Sprunt M D	2 yrs	15	30	JanJuly	U & B
Methodist Hospital Memphis		W W Tribby M D	2 yrs	13	9	Varies	$100
St Joseph Hospital Memphis		T C Moss M D	2 yrs	15	10	Every 2 mo	B
Geo W Hubbard Hospital Nashville *	Tennessee A & I State College †	C D Holloway M D	2 yrs	24	12	Sept	$250
Nashville General Hospital Nashville *		W A. DeMonbreun M.D	2 yrs	12	5	Varies	None
St Thomas Hospital Nashville *		D K Gotwald, M D	2 yrs	12	4	JanJuly	None
Veterans Admin Hospital Nashville *		S H Auerbach M.D	2 yrs	12	4	Varies	None
TEXAS							
Brackenridge Hospital Austin *		S W Bohls M.D	Degree	12	3	AprSept	None[1]
Hotel Dieu Hospital Beaumont	Lamar College	E D Furey M D	2 yrs	18	3	FebJune	None
St Therese Hospital Beaumont *	Lamar College	H B Williford M D	2 yrs	18	3	MarSept	None
Baylor University Hospital, Dallas	Baylor University †	J M Hill, M D	2 yrs	13	18	FebJuly	$100
St Paul's Hospital Dallas *		J L Coforth M.D	2 yrs.	12	4	JanJuly	None
Hotel Dieu Sisters Hospital El Paso *		M S Hart M D	2 yrs	12	2	Varies	None

APPROVED SCHOOLS FOR MEDICAL TECHNOLOGISTS—Continued

Name and Location of School	College Affiliation	Pathologist in Charge	Minimum Prerequisite College	Length of Training in Months	Maximum Enrolment	Classes Begin	Tuition
TEXAS—Continued							
Harris Hospital, Fort Worth *	Texas Christian University †	C D Fitzwilliam, M D	3 yrs	12 18	8	JanSept	U
Terrell's Laboratories, Fort Worth	North Texas State Teachers' Coll †	T C Terrell, M.D	3 yrs	12	4	FebJuly	None
John Sealy Hospital, Galveston *	University of Texas Medical Branch	E E Baird, M D	2 yrs	12	13	Monthly	$123B
Hermann Hospital, Houston	Baylor Univ College of Medicine	I Gore, M D	2 yrs	12	12	July	$50[1]
Jefferson Davis Hospital, Houston *	University of Houston †	W W Coulter Sr, M D	2 yrs	12	12	Monthly	$50
Methodist Hospital, Houston		H Davenport Jr, M D	2 yrs	12	4	Quarterly	None[1]
St Joseph's Infirmary, Houston	University of Houston †	P M Marcuse, M D	2 yrs	12	6	Varies	None
St Mary's Hospital, Port Arthur *	Northwestern State College †	H B Williford, M D	2 yrs	12	4	JuneSept	None
Baptist Memorial Hospital, San Antonio *		A O Severance, M D	2 yrs	13	6	*Every 2 mo*	*None*[1]
Nix Memorial Hospital San Antonio		B F Stout, M D	2 yrs	12	8	Varies	None
Santa Rosa Hospital, San Antonio	Incarnate Word College †	J M Moore, M D	3 yrs	12	10	Quarterly	None
Scott and White Hospital, Temple		W N Powell, M D	2 yrs	12	10	Varies	None[1]
UTAH							
St Benedict's Hospital, Ogden *	University of Utah †	R C Ellis, M D	2 yrs	12	10	Varies	$75B
Thomas D Dee Memorial Hospital, Ogden *	University of Utah †	E D Zeman, M D	3 yrs	12	4	JanJune	U[1]
Dr W H Groves Latter Day Saints Hospital, Salt Lake City *	University of Utah †, State Agricultural College †	J H Carlquist, M D	3 yrs	12	3	JanJuly	None
Holy Cross Hospital, Salt Lake City *	Univ of Utah †, St Mary's Coll †	C McNeil M D	3 yrs	12	4	July	None
St Mark's Hospital Salt Lake City *	Brigham Young Univ, Univ of Utah	S A Swift, M D	2 yrs	12	4	JuneSept	None[1]
Salt Lake County Gen Hosp, Salt Lake City *	University of Utah School of Med †	F D Gunn, M D	3 yrs	12	8	Varies	U
VERMONT							
University of Vermont College of Medicine, Burlington *	University of Vermont †	B J Pearson, M D	3 yrs	15	8	Aug	U
Veterans Admin Hospital, White River Jct *	Dartmouth Medical School	P O Nice, M D	2 yrs	12	4	Varies	None
VIRGINIA							
University of Virginia Hospital, Charlottesville *		W E Bray Sr, M.D	2 yrs	12	12	Sept	B
DePaul Hospital, Norfolk *	Richmond Professional Institute †, William and Mary College †	A F Strauss, M D	2 yrs	18	8	Varies	B
Norfolk General Hospital Norfolk *		L J Motyca, M D	2 yrs	15	8	JulySept	B
Grace Hospital, Richmond		J H Scherer, M D	2 yrs	15	5	Varies	B
Johnston Willis Hospital Richmond		W A Shepherd, M D	2 yrs	15	2	Sept	$100
Medical College of Virginia, Hospital Division, Richmond *	Medical College of Virginia †	G Z Williams, M D	2 yrs	18	10	Varies	$25
Stuart Circle Hospital, Richmond	Richmond Professional Institute †	R O Beck, M D	2 yrs	12	4	JuneSept	B
Jefferson Hospital Roanoke		F. L Beckel, M D	2 yrs	12	4	Oct	None
WASHINGTON							
King County Hospital Seattle		C R Jensen, M D	4 yrs	12	0	Quarterly	$10
Providence Hospital, Seattle	Seattle University †	D G Mason, M D	2 yrs	12	4	Quarterly	$20
Deaconess Hospital Spokane *	Univ of Idaho, Whitworth College	T E Ludden, M D	2 yrs	12	6	Varies	None[1]
Sacred Heart Hospital Spokane *		J E Hill, M D	2 yrs	12	7	JulySept	None
St Luke's Hospital Spokane *	Washington State College †	O O Christianson, M D	2 yrs	12	12	FebSept	$40
St Joseph's Hospital Tacoma	Seattle University †	C R McColl, M D	2 yrs	12	6	Varies	None[1]
Tacoma General Hospital, Tacoma *	Pacific Lutheran College †, College of Puget Sound †	C P Larson, M D	2 yrs	12	7	Varies	None
WEST VIRGINIA							
St Mary's Hospital, Clarksburg *	Wesleyan University †	H Fischer, M D	2 yrs	12	12	Every 3 mo	B
Fairmont General Hospital Fairmont *	Fairmont State College	W A Ehrgott, M D	4 yrs	12	2	FebAug	
School of Med West Va Univ, Morgantown *	West Virginia University †	M L Hobbs, M D	3 yrs	12	12	JulySept	$130B
Camden Clark Memorial Hospital Parkersburg		W S Dick, M D	2 yrs	15	6	Varies	None
St Joseph's Hospital, Parkersburg *	Marietta College		Degree	12	2	Sept	None
WISCONSIN							
St Francis Hospital La Crosse		P C Dietz, M D	2 yrs	12	6	Sept	$100
Madison General Hospital Madison		L McGary, M D	2 yrs	12	5	Oct	None
St Mary's Hospital, Madison	Mount Mary Coll †, Coll of St Teresa † Cardinal Stritch Coll †	L F Bleyer, M D	2 yrs	12	10	Varies	B
State of Wisconsin General Hospital, Madison	University of Wisconsin †	W D Stovall, M D	3 yrs	12	20	Varies	U
St Joseph's Hospital Marshfield *		J B Miale, M D	2 yrs	18	4	Varies	$50
Columbia Hospital, Milwaukee	Marquette University †	G Ritchie M D	2 yrs	18	6	JanJuly	None[1]
Evangelical Deaconess Hospital Milwaukee		R S Haukohl, M D	2 yrs	12 24	4	Sept	$100
Milwaukee County Hospital Milwaukee *	Marquette University †	J F Kuzma, M D	2 yrs	18	8	FebJuly	None
Milwaukee Hospital, Milwaukee *		E A Birge, M D	2 yrs	12	6	July	None
Mount Sinai Hospital, Milwaukee *		N Enzer, M D	2 yrs	12 24	2	Varies	None
St Joseph's Hospital Milwaukee	Marquette University †	W A D Anderson, M D	2 yrs	18	6	JuneOct	None
St Luke's Hospital Milwaukee		L J Van Hecke, M D	2 yrs	12	2	Varies	None
St Mary's Hospital Milwaukee *	Marquette University	S B Pessin, M D	2 yrs	18	6	Varies	None
Veterans Admin Center, Milwaukee (Wood) *		T M Lubitz, M D	2 yrs	12	10	Varies	None
St Mary's Hospital Racine *		M Schuster, M D	2 yrs	12	2	June	B
St Mary's Hospital, Wausau *		O R Kelley, M D	2 yrs	15	4	Quarterly	$50B
WYOMING							
Memorial Hospital, Cheyenne *	University of Wyoming †	S S Zuckerman, M D	2 yrs	12	6	AprSept	$175
CANAL ZONE							
Board of Health Laboratory, Gorgas Hospital, Ancon *	Canal Zone Junior College	N W Elton, M D	2 yrs	12	30	Monthly	None
HAWAII							
Kuakini Hospital, Honolulu *	University of Hawaii †	I A Kawasaki, M D	3 yrs	12	2	June	None[1]
Queen's Hospital, Honolulu *	University of Hawaii †	S Price, M D	3 yrs	12	3	July	None
St Francis Hospital, Honolulu *	University of Hawaii †	I L Tilden, M D	3 yrs	12	2	Sept	$50
Tripler General Hospital, Moanalua, Honolulu *	University of Hawaii †	G B Stansell, M D	3 yrs	12	6	July	$150
PUERTO RICO							
School of Tropical Medicine, University of Puerto Rico, San Juan *	University of Puerto Rico †	O O Mandry, M D	Degree	12	22	Aug	U

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† College credit received during hospital training

[1] Students are paid a stipend

[2] College credit allowed by each of the following affiliations Michigan State College, Western Michigan College of Education, Central Michigan College of Education, Albion College, Alma College, Michigan College of Mining and Technology

SCHOOLS FOR X-RAY TECHNICIANS

In 1943 the American Registry of X-Ray Technicians requested the American Medical Association to assume the responsibility of approving schools for x-ray technicians A resolution embodying this request was introduced by the Section on Radiology at the 1943 session of the American Medical Association and delegated the Council on Medical Education and Hospitals to establish standards for training inspect schools and publish lists of acceptable training courses With the assistance of the Registry and the American College of Radiology standards were established by the Council and adopted by the House of Delegates in 1944 Prior to this time the approval of schools for x-ray technicians had been carried on as a function of the Registry The present Essentials of an Acceptable School for X-Ray Technicians, which have been in force since 1944, specify in the entrance requirements a minimum of high school graduation While preceptorial methods of training are generally employed in this field, consideration is now being given to the establishment of a standard curriculum to aid hospitals in the development of individual training programs

The first list of x-ray schools approved by the Council was published in January 1945 This list contained the names of 112 schools which had been evaluated by the Council on information supplied by the Registry and reports submitted by the various schools

A total of 267 schools are now approved, as compared with 224 in 1948 High school graduation is a prerequisite for admission to 234 of these schools, one requires a degree, 20 two years of college or completion of a nurse's training course, while the remaining 12 specify one year of college training On completion of the prescribed course, 224 schools offer certificates to graduates and 35 grant diplomas, 8 failed to answer the question

The schools presently approved have an enrolment of 1,447 students, an increase of 271 over the previous year Not all approved schools, however, reported graduates for 1949, owing in large part, no doubt to the fact that 43 new training programs were established during the past twelve months The number of graduates for 1949 was 764, but it is anticipated that approximately 1,000 students will complete their training in 1950 One hospital which expects to graduate 5 students this year, in 1949 received 121 applications for training, a second hospital reported 98 applications, whereas the maximum number of students in the class is only 3 Obviously this is an indication that high school graduates are eager to enter the field of technical training

The minimum length of training 12 months, is acceptable to 145 schools Of the remaining 122 schools, 77 have indicated 24 months' training, 44 from 14 to 18 months and one 48 months Training is available to men in more than 200 of the approved schools

Acceptable schools may be conducted by approved medical schools, general hospitals or x-ray departments affiliated with a general hospital Applications for approval should be submitted to the Council on Medical Education and Hospitals, 535 North Dearborn Street, Chicago 10 Inquiries regarding registration of qualified x-ray technicians should be addressed to the American Registry of X-Ray Technicians, 2900 East Minnehaha Parkway, Minneapolis 6

APPROVED SCHOOLS FOR X-RAY TECHNICIANS

Council on Medical Education and Hospitals of the American Medical Association

NOTE Complete details regarding admission to an approved school for x ray technicians can be obtained by communicating directly with the radiologist. Asterisk (*) after name of school indicates that male as well as female students are admitted

Name and Location of School	Radiologist in Charge	Entrance Requirements	Length of Training in Months	Maximum Enrolment	Classes Begin	Tuition	Certificate Diploma Degree
ALABAMA							
Jefferson Hillman Hospital Birmingham *	M. Barfield-Carter M.D	High school	12	6	JanJuly	None	Certificate
ARIZONA							
St Monica s Hospital Phoenix *	J Foster M.D	High school	18	2	Spring	None †	Certificate
ARKANSAS							
University Hospital Little Rock *	I Meschan M.D	High school	12	12	FebAug	$180	Diploma
CALIFORNIA							
Herrick Memorial Hospital Berkeley *	H P Brean M.D	High school	24	3	Varies	$400	Certificate
California Hospital Los Angeles *	W Hiemstra M.D	High school	24	4	Varies	$50 †	Certificate
Cedars of Lebanon Hospital Los Angeles *	E Freedman M.D	High school	12	4	Quarterly	None	Certificate
Childrens Hospital, Los Angeles *	R G Karshner M.D	2 yrs coll. or R.N	24	4	Sept	$100	Certificate
College of Medical Evangelists Los Angeles *	W L Stilson M.D	1 yr college	12	6	Every 2 mo	$100	Certificate
Los Angeles County Hospital Los Angeles *	R A. Carter M.D	2 yrs coll. or R.N	12	10	Varies	None †	Certificate
Paradiso Valley Sanit. and Hosp National City	C L. Stewart M.D	High school	12	2	FebSept	None	Certificate
Peralta Hospital Oakland *	D Tucker M.D	High school	24	4	Jan	$[illegible] yr	Certificate
Collis P and Howard Huntington Memorial Hospital, Pasadena	R S Harrison M D	2 yrs college	12	3	Sept	$25	Certificate
Mercy Hospital Sacramento	J D Lawson M D	1 yr coll. or R.N	12	3	Feb	None	Certificate
Stanford University Hospitals San Francisco *	H S Kaplan M.D	High school	13	4	JanJuly	None	Certificate
COLORADO							
Colorado General Hospital Denver *	M. H. Levine M D	High school	12	9	FebAug	None	Certificate
Denver General Hospital Denver *	E Salzman M D	High school	12	6	JanJuly	None	Certificate
General Rose Memorial Hospital Denver *	J H Weiss M.D	High school	12	4	Quarterly	None	Certificate
Presbyterian Hospital Denver *	K. D A. Allen M.D	High school	12	5	Varies	None	
St Anthony Hospital, Denver	J S Bouslog M D	1 yr college	12	8	JanJune	None	Certificate
St Luke s Hospital, Denver *	W P Stampfl M.D	High school	12	6	Every 3 mo	None	Cert & Dipl.
Weld County Hospital Greeley *	W W McCaw M.D	1 yr college	12	3	Every 6 mo	None	Diploma

APPROVED SCHOOLS FOR X-RAY TECHNICIANS—Continued

Name and Location of School	Radiologist in Charge	Entrance Requirements	Length of Training in Months	Maximum Enrolment	Classes Begin	Tuition	Certificate, Diploma, Degree
CONNECTICUT							
Hartford Hospital, Hartford *	R T Ogden, M D	High school	24	4	June	None	Certificate
Grace Unit, Grace New Haven Community Hospital, New Haven *	R M Lowman, M D	High school	18-24	10	Every 6 mo	None	Certificate
New Haven Unit, Grace New Haven Community Hospital, New Haven *	A H Janzen, M D	1 yr college	24	6	July	None	Certificate
Hospital of St Raphael, New Haven *	R Shapiro, M D	High school	18	4	July	None	Certificate
FLORIDA							
Sacred Heart Hospital, Pensacola *	N Arenson, M D	High school	12	2	JanJuly	None	Certificate
GEORGIA							
Crawford W Long Memorial Hospital, Atlanta *	J D King, M D	High school	12	4	Quarterly	None	Certificate
Georgia Baptist Hospital, Atlanta *	L Long, M D	High school	12	3	Varies	None	Certificate
Grady Memorial Hospital, Atlanta *	H S Weens, M D	High school	12	10	Varies	None	Certificate
Piedmont Hospital, Atlanta	G R Hrdlicka, M D	High school	12	2	Every 6 mo	None	Certificate
University Hospital, Augusta *	L P Holmes, M D	High school	12	10	Varies	None	Certificate
Emory University Hospital, Emory University *	J F Leigh, M D	2 yrs college	12	4	Every 3 mo	$100	Certificate
IDAHO							
St Alphonsus Hospital, Boise *	J B Morris, M D	High school	18	6	Varies	None †	Diploma
St Luke's Hospital, Boise *	A M Popma, M D	High school	15	4	Spring&Fall	None	Certificate
Mercy Hospital, Nampa *	N Bolker, M D	High school	12	3	Spring&Fall	None	Certificate
Samaritan Hospital, Nampa *	N Bolker, M D	High school	12	3	April	None	Certificate
ILLINOIS							
Alexian Brothers Hospital, Chicago *	C Colangelo, M D	High school	24	2	Sept	None	Certificate
Augustana Hospital, Chicago	D S Bellin, M D	R N	18	3	FebJuly	None †	Diploma
Chicago Memorial Hospital, Chicago	J F Sammet, M D	High school	12	3	Quarterly	None	Certificate
Cook County Graduate School of Medicine, Chicago *	G M Landau, M D	High school	12	10	JanJuly	$150	Certificate
Edgewater Hospital, Chicago	N S Zeitlin, M D	High school	12	10	Varies	$360	Certificate
Englewood Hospital, Chicago	A J Rosenblate, M D	High school	18	6	Spring&Fall	None †	Certificate
Evangelical Hospital, Chicago *	B C Cushway, M D	High school	18	6	Oct	None	Certificate
Michael Reese Hospital, Chicago	R A Arens, M D	1 yr college	18	6	Varies	None	Certificate
Mount Sinai Hospital, Chicago	I Arendt, M D	High school	12	6	Every 6 mo	None	Certificate
Norwegian American Hospital, Chicago *	R H Warden, M D	High school	24	6	Spring&Fall	$250 yr	Certificate
Provident Hospital, Chicago *	W P Quinn, M D	High school	24	10	Monthly	$150 yr	Certificate
Ravenswood Hospital, Chicago	D J Jenkinson, M D	High school	18	6	JanJuly	None	Diploma
St Anne's Hospital, Chicago *	R M Cassidy, M D	High school	24	4	Sept	None	Certificate
St Bernard's Hospital, Chicago *	B C Cushway, M D	High school	18	6	Oct	None	Certificate
St Elizabeth Hospital, Chicago *	I Brams, M.D	High school	12	3	Varies	None †	Certificate
St George's Hospital, Chicago *	B C Cushway, M D	High school	18	6	Oct	None	Certificate
St Joseph Hospital, Chicago *	W E Anspach, M D	High school	12	2	JanJuly	None	Certificate
St Luke's Hospital, Chicago	F J Jenkinson, M D	2 yrs coll or R N	18	13	Varies	$75	Diploma
St Mary of Nazareth Hospital, Chicago *	C J Challenger, M D	High school	24	6	Varies	$250 †	Diploma
South Chicago Community Hospital, Chicago *	B D Braun, M D	High school	18	6	Varies	None †	Certificate
Woodlawn Hospital, Chicago *	I Donaldson, M D	High school	18	2	Varies	None	Certificate
Dixon Public Hospital, Dixon *	R F Kinzer, M D	High school	12	2	Varies	None	Diploma
Memorial Hospital of Du Page County, Elmhurst *	C R Snead, M D	High school	18	2	Varies	$50	Certificate
St Francis Hospital, Evanston	A C Ledoux, M D	High school	12	5	MarSept	$50	Certificate
John C Proctor Hospital, Peoria *	P B Goodwin, M D	High school	12 24	5	JanJuly	$100	Certificate
Methodist Hospital of Central Illinois, Peoria *	F H Decker, M D	High school	12	2	Varies	None	Certificate
St Francis Hospital, Peoria *	P R Dirkse, M D	High school	24	4	FebSept	$100	Certificate
Rockford Memorial Hospital, Rockford	B Roseberg, M D	High school	12	2	Varies	None	Certificate
St Anthony's Hospital, Rockford	T J Lang, M D	High school	18	4	Spring&Fall	$25	Diploma
Swedish American Hospital, Rockford	H W Ackemann, M D	High school	18	2	JanJuly	None	Certificate
Memorial Hospital, Springfield	J F King, M D	High school	12	6	JanJune	None	Certificate
St John's Hospital, Springfield	W DeHollander, M D	High school	12	6	Sept	$50	Certificate
INDIANA							
St Catherine Hospital, East Chicago	B D Braun, M D	High school	18	8	Varies	$100	Diploma
St Joseph Hospital, Fort Wayne *	C H Warfield, M.D	High school	24	6	August	$100	Certificate
Methodist Hospital, Gary	J P Bennett, M D	High school	12	4	Varies	None †	Diploma
Indiana University Medical Center, Indianapolis *	J A Campbell, M D	High school	12	15	Sept		Certificate
Methodist Hospital, Indianapolis	H C Ochsner, M D	High school	12 24	6	Varies	None †	Diploma
St Anthony Hospital, Terre Haute *	H J Pierce, M D	High school	12	6	Every 6 mo	$50	Certificate
IOWA							
Mercy Hospital, Cedar Rapids	A W Erskine, M D	High school	24	3	August	None	Certificate
St Luke's Methodist Hospital, Cedar Rapids	J V Prouty, M D	High school	12	4	JanJuly	None	Certificate
Mercy Hospital, Council Bluffs *	J F Kelly, M D	High school	24	4	August	None	Certificate
Broadlawns, Polk County Hospital, Des Moines *	A B Phillips, M D	High school	24	2	August	$210 †	Certificate
Finley Hospital, Dubuque *	R P Rusk, M D	High school	24	3	Every 6 mo	$200	Certificate
St Joseph Mercy Hospital, Dubuque *	R P Rusk, M D	High school	24	3	Every 6 mo	$200	Certificate
University Hospitals, Iowa City *	H D Kerr, M D	High school	12	14	Varies	None	Certificate
St Joseph Hospital, Ottumwa *	S F Singer, M D	High school	24	2	Sept	None	Certificate
St Joseph Mercy Hospital, Sioux City *	M M McCulstion, M D	High school	24	8	FebSept	None	Diploma
KANSAS							
Bethany Hospital, Kansas City	P F Hiebert, M D	High school	12	2	FebSept	None †	Certificate
University of Kansas School of Medicine, Kansas City *	G M Tice, M D	2 yrs college	12	6	Varies	None †	Certificate
Wesley Hospital, Wichita *	N C Nash, M D	High school	24	6	JuneSept	None	Certificate
Wichita Hospital, Wichita *	A F Rossitto, M D	High school	12	8	MarSept	None	Certificate
KENTUCKY							
St Elizabeth Hospital, Covington *	N Adair, M D	High school	12	4	June	None	Certificate
Louisville General Hospital, Louisville *	F J Pirkey, M D	High school	12	8	Varies	$50	Certificate
Norton Memorial Infirmary, Louisville *	J O Bell, M D	High school	12	3	Varies	$50	Diploma
St Joseph Infirmary, Louisville *	S E. Johnson, M D	High school	24	6	FebSept	None †	
LOUISIANA							
Charity Hospital of Louisiana, New Orleans *	L J Menville, M D	High school	12	25	August	None	Certificate
Touro Infirmary, New Orleans *	A R Payzant, M D	High school	12	3	Varies	$100	Cert & Dipl
U S Marine Hospital, New Orleans *	A Mayoral, M.D	High school	12	2	JanJuly	None †	Certificate
Shreveport Charity Hospital, Shreveport *	G M Riley, M D	High school	18	6	Varies	None	Certificate

APPROVED SCHOOLS FOR X-RAY TECHNICIANS—Continued

Name and Location of School	Radiologist in Charge	Entrance Requirements	Length of Training in Months	Maximum Enrolment	Classes Begin	Tuition	Certificate Diploma Degree
MAINE							
Maine General Hospital Portland *	J Spencer M D	High school	12	6	Oct	None	—
MARYLAND							
Baltimore City Hospitals Baltimore *	J DeCarlo Jr M D	High school	24	7	Varies	None †	Cert & Dipl.
Johns Hopkins Hospital Baltimore *	R H Morgan M D	High school	18	30	MarSept	$100	Certificate
MASSACHUSETTS							
Massachusetts Memorial Hospitals Boston	G Levene M.D	*High school*	12	3	Varies	*None*	*Certificate*
Providence Hospital, Holyoke	E J Harrington M.D	High school	15	2	Spring & Fall	None	Certificate
Lawrence General Hospital Lawrence *	G V West, M D	High school	12	4	JanSept	$150	Certificate
St Luke's Hospital, Pittsfield *	F Martin M D	High school	12	3	Varies	None	Diploma
Quincy City Hospital Quincy *	W S Altman M D	High school	12 24	2	JulySept	None	Certificate
Mercy Hospital Springfield	A J Horrigan M D	High school	12 15	3	Every 6 mo	None	Certificate
St Vincent Hospital Worcester	A E O Connell M.D	High school	12	3	JanSept	None	Certificate
MICHIGAN							
St. Joseph Mercy Hospital Ann Arbor	S W Donaldson M.D	High school	12	2	JanJuly	None	Certificate
Leila Y Post Montgomery Hospital Battle Creek *	S P Barden M.D	High school	12	5	Varies	None †	Certificate
Chas Godwin Jennings Hospital Detroit *	F C Jewell M.D	High school	12	4	Sept	None	Certificate
Detroit Memorial Hospital Detroit *	J E. Lofstrom M D	High school	12	10	MarSept	$150	Certificate
Mount Carmel Mercy Hospital Detroit	J M Grace M.D	High school	24	6	Sept	$100 first year	Certificate
Saratoga General Hospital Detroit *	F C Jewell M.D	High school	12	2	July	$50	Certificate
Wayne County General Hospital and Infirmary Eloise *	J Zbikowski M D	High school	12	3	Quarterly	None	Certificate
Hurley Hospital, Flint *	D R Limbach M.D	High school	18	15	Varies	$50	Certificate
Blodgett Memorial Hospital Grand Rapids *	H C Jones M.D	High school	12	2	Varies	None †	Certificate
MINNESOTA							
St. Luke's Hospital Duluth *	A L Abraham M.D	High school	16	8	Quarterly	None	Certificate
St Mary's Hospital, Duluth	J R McNutt M D	2 yrs coll or R N	12	6	MarSept	None	Diploma
Eitel Hospital Minneapolis	R H Beiswanger M D	High school	12	3	Varies	None	Certificate
Fairview Hospital Minneapolis *	G M. Kelby M.D	High school	12	4	JanJune	$100	Certificate
Minneapolis General Hospital Minneapolis	O Lipschultz, M.D	High school	12	15	Monthly	None	Diploma
St Mary's Hospital Minneapolis *	W H Ude M.D	High school	12	6	AprOct	None	Certificate
Swedish Hospital, Minneapolis *	G T Nordin M.D	2 yrs college	12	12	Monthly	$125	Certificate
University of Minnesota Hospitals Minneapolis *	L. *Rigler M D*	2 yrs *college*	15	20	*Quarterly*	$54	*Certificate*
St Cloud Hospital, St Cloud	C B Nessa M.D	High school	24	10	Sept	$40	Certificate
Bethesda Hospital, St Paul *	J P Medelman M D	High school	12	4	Varies		Certificate
Charles T Miller Hospital St Paul *	H O Peterson M.D	High school	12	5	Varies	None	Certificate
St Joseph's Hospital St Paul *	J P Medelman M D	High school	12	6	JanJune	None	Certificate
MISSISSIPPI							
Lutheran Hospital Vicksburg	F J Hamernik M.D	High school	18	2	July	None †	Certificate
Mercy Hospital-Street Memorial, Vicksburg	T B Dominick, M.D	*High school*	12	3	Varies	None	Certificate
MISSOURI							
Independence Sanitarium and Hospital Independence *	J F Bowser M.D	High school	12	4	JanJuly	None †	Certificate
Kansas City General Hospital No 1 Kansas City	L. A. Scarpellino M D	High school	12	6	Every 4 mo	None †	Certificate
Kansas City General Hospital No 2 Kansas City *	A. B Smith M.D	High school	12	5	JanSept	None †	Certificate
Menorah Hospital Kansas City	D S Dann M D	High school	24	6	Quarterly	None †	Certificate
Research Hospital, Kansas City	I H Lockwood M.D	High school	12	8	JanJuly	None	Certificate
St Luke's Hospital Kansas City	L. A Scarpellino M D	High school	12	6	Every 3 mo.	$25	Certificate
De Paul Hospital, St Louis *	E. C Ernst, M.D	High school	24	4	JanJuly	$150 †	Certificate
Evangelical Deaconess Hospital St Louis	J C Peden M.D.	High school	24	7	FebSept	$100	Diploma
Homer G Phillips Hospital St Louis *	W E. Allen Jr M D	High school	24	6	Sept	$150	Certificate
St Louis University School of Nursing St. Louis	L. R Sante, M.D	High school	4 yrs	24	Varies	$175 per semester	Dipl. & Deg
St Mary's Infirmary St Louis	W E Allen, M D	High school	24	2	Sept	$150	Certificate
MONTANA							
Murray Hospital, Butte *	J G Sawyer M.D	High school	12	2	Varies	None	Certificate
NEBRASKA							
Lincoln *General Hospital Lincoln*	J M Neely, M D	High school	12	2	MarSept	None	Certificate
St Elizabeth Hospital, Lincoln *	J T McGreer Jr M D	High school	24	5	FebJune	None	Certificate
Creighton Memorial St Joseph Hospital Omaha *	J F Kelly M D	High school	24	10	Sept	$100 yr	Certificate
Immanuel Deaconess Institute Omaha	F L Simonds M.D	1 yr college	12	2	Sept	None	Certificate
University of Nebraska College of Medicine Omaha *	H B Hunt M D	High school	12	4	JanJuly	$50	Certificate
NEW HAMPSHIRE							
Mary Hitchcock *Memorial Hospital Hanover*	L K Sycamore, M.D	2 yrs coll or R.N	12	3	JanJuly	$50	Certificate
Laconia Hospital, Laconia *	G Farmlett M.D	High school	12	6	Varies	None	Certificate
NEW JERSEY							
Jersey City Medical Center Jersey City *	H J Perlberg M D	High school	12	15	FebAug	None	Certificate
Paterson General Hospital, Paterson *	E L Warren, M.D	High school	15	5	MarSept	None	Certificate
Mercer Hospital Trenton	M P Mains M D	High school	12	2	JanJune	None	Certificate
St *Francis Hospital Trenton* *	B R. Wayman M D	High school	24	4	July	$150	Certificate
NEW YORK							
Albany Hospital, Albany *	W P Howard M D	High school	24	7	August	$350 yr †	Certificate
Edward J Meyer Memorial Hospital, Buffalo *	E G Eschner M.D.	High school	24	4	July	None	Certificate
Mercy Hospital Buffalo	C G. Jenczeski M D	*High school*	24	2	*Sept*	*None*	*Certificate*
Brooks Memorial Hospital Dunkirk	S B. Clark, M D	High school	24	3	JanJuly	$100 †	Certificate
St Joseph's Hospital Elmira *	H A Burch M.D	High school	24	2	Sept	$100	Certificate
New York Hospital New York *	R P Ball M.D	High school	24	18	Oct	$500 †	Diploma
New York Polyclinic Medical School and Hospital, New York *	W H Shehadi M.D	High school	12	10	AprOct	$250	Certificate
St. Clare's Hospital New York *	J Evans M D	High school	12	3	Sept	None	Certificate
Rochester General Hospital, Rochester *	E. F Merrill M.D	High school	12	2	FebSept	$120	Certificate
St *Mary's Hospital Rochester* *	A. V Winchell, M D	High school	12	4	July	None	Certificate
Strong Memorial Hospital Rochester *	G H Ramsey M D	High school	12	12	Quarterly	$150	Certificate

APPROVED SCHOOLS FOR X-RAY TECHNICIANS—Continued

Name and Location of School	Radiologist in Charge	Entrance Requirements	Length of Training in Months	Maximum Enrolment	Classes Begin	Tuition	Certificate Diploma, Degree
NORTH CAROLINA							
Cabarrus County Hospital, Concord	A Tuggle, M D	High school	18	3	MarSept	$100	Diploma
Duke University School of Medicine, Durham *	R I Reeves, M D	Deg or R.N	12	4	MarOct	$25	Certificate
Watts Hospital, Durham *	W W Vaughan, M D	2 yrs college	12	4	JulySept	$50	Certificate
Bowman Gray School of Medicine, Winston Salem *	J P Rousseau, M D	High school	12	4	JanJuly	$50	Certificate
City Memorial Hospital, Winston-Salem *	J Selman, M D	High school	12	2	July	None	Certificate
Kate Bittings Reynolds Memorial Hospital, Winston Salem *	W S Adams, M D	2 yrs coll or R.N	12	2	JulyDec	None †	Certificate
NORTH DAKOTA							
Quain and Ramstad Clinic, Bismarck *	H M Berg, M D	High school	24	4	Varies	None †	Certificate
St Alexius Hospital, Bismarck *	H M Berg, M D	High school	24	4	Varies	None †	Certificate
Trinity Hospital, Minot	D L Oltman, M D	High school	12	8	Varies	None †	
OHIO							
City Hospital, Akron *	F T Moore, M D	High school	24	4	FebJuly	None †	Cert & Dipl
Cincinnati General Hospital, Cincinnati *	B Felson M D	High school	12	7	Every 2 mo	$75	Certificate
Our Lady of Mercy Hospital Cincinnati *	C M Barrett, M D	2 yrs college	12	2	Varies	$75	
City Hospital, Cleveland *	H Hauser, M D	High school	12	9	Every 6 wks	$100	Certificate
Mount Sinai Hospital, Cleveland *	H A Mahrer, M D	High school	12	3	FebAug	$100	Certificate
St Luke's Hospital, Cleveland *	D D Brannan, M D	High school	12	5	Varies	$50	Diploma
St Vincent Charity Hospital, Cleveland *	I I O'Malley, M D	High school	12	2	Varies	$100	Certificate
University Hospitals Cleveland *	H L Friedell M D	High school	14	9	Every 6 wks	$100	Certificate
Doctors Hospital, Cleveland Heights *	R H Thompson M D	High school	12	2	Varies		Certificate
Ohio State University Hospital Columbus	H I Means M D	High school	12	8	Varies	None †	Certificate
Good Samaritan Hospital, Dayton	H Snow, M D	High school	24	2	Every 6 mo	None	Certificate
Miami Valley Hospital, Dayton *	G A Nicoll M D	High school	12	4	Varies	None	Certificate
St Elizabeth Hospital, Dayton	H Snow, M D	High school	12	3	JuneSept	None	Certificate
Huron Road Hospital, East Cleveland *		High school	12	4	Every 3 mo	$100	Certificate
Mercy Hospital Hamilton *	F I Saenger, M D	High school	24	2	Varies	$25	Certificate
St Rita's Hospital Lima *	D W English, M D	High school	18	3	JanJuly	None	Certificate
St Joseph Hospital Lorain *	D A Russell, M D	High school	12	4	Jan	$50	Certificate
Newark Hospital, Newark *	A D Platt M D	High school	12	3	Sept	None	Certificate
Youngstown Hospital, Youngstown	E C Baker, M D	High school	12	4	Varies	None †	Certificate
OKLAHOMA							
Mercy Hospital Oklahoma City *	I R Danstrom M D	High school	24	2	Varies	None †	Cert & Dipl
St Anthony's Hospital Oklahoma City *	B F Mulvey, M D	High school	12	3	Every 6 mo.	None †	Certificate
University Hospitals, Oklahoma City *	P F Russo, M D	High school	12	6	MayOct	None	Certificate
St John's Hospital, Tulsa *	L M Pascucci, M D	High school	24	8	Varies	None †	Certificate
OREGON							
St Anthony's Hospital, Pendleton *	D R Rich M D	High school	12	10	Every 2 mo	$250	Certificate
Portland Sanit and Hospital, Portland *	A F Hunter, M D	High school	12	2	JanJuly	$100	Certificate
University of Oregon Medical School Hospitals and Clinics, Portland *	W Y Burton, M D	High school	12	9	Every 6 wks	None	Certificate
PENNSYLVANIA							
Chester Hospital, Chester	A M Sharpe, M D	High school	18	4	JanJuly	None	Certificate
Geo I Geisinger Memorial Hospital, Danville *	C I Hinkel M D	High school	24	4	July	None †	Cert & Dipl
Fitzgerald Mercy Hospital, Darby	F K Alexander, M D	High school	12	5	JanJuly	None	Certificate
St Vincent's Hospital, Erie *	B S Putts, M D	High school	18	3	Varies	None	Certificate
Conemaugh Valley Memorial Hospital Johnstown *	C B Cobern, M D	High school	24	2	Jan	None †	
Germantown Disp and Hospital, Philadelphia *	B R Young M D	High school	12	3	July	None	
Grad Hosp of the Univ of Penn , Philadelphia *	A Finkelstein M D	High school	24	12	JuneOct	$150	Certificate
Hahnemann Hospital, Philadelphia	A F Krick, M D	High school	14	11	Every 3 mo	$150	Diploma
Hospital of the Univ of Pennsylvania, Philadelphia *	E P Pendergrass, M D	High school	24	15	Sept	$250	Certificate
Jefferson Medical College Hospital, Philadelphia *	P C Swenson M D	High school	24	9	FebOct	None	Certificate
Jewish Hospital Philadelphia *	I Gershon Cohen, M D	High school	24	5	Sept	$300	Certificate
Nazareth Hospital, Philadelphia	I S Fetter, M D	High school	24	4	Sept	None	Certificate
Philadelphia General Hospital, Philadelphia *	B P Widmann M D	High school	18	30	FebSept	None	Diploma
Elizabeth Steel Magee Hosp , Pittsburgh *	C N Chasler, M D	High school	24	2	JanJuly	None †	
Western Pennsylvania Hospital, Pittsburgh *	R G Alley, M D	High school	12	2	MarSept	None	Certificate
Scranton State Hospital, Scranton *	W J Corcoran M D	High school	24	2	JuneSept	None	Certificate
West Side Hospital, Scranton *	I A Milkman, M D	High school	12	2	Jan	$40	Certificate
Christian H Buhl Hospital Sharon *	H A Steiner, M D	High school	12	4	Varies	None	Certificate
Chester County Hospital, West Chester *	I Gershon Cohen, M D	High school	24	2	July	$200	Certificate
Wilkes Barre General Hospital, Wilkes Barre *	P F Ringawa M D	High school	14	4	Every 6 mo	None	Diploma
SOUTH CAROLINA							
Anderson County Memorial Hospital, Anderson	J J Davis M D	High school	12	4	Spring&Fall	None †	Certificate
Roper Hospital, Charleston *	H S Pettit, M D	2 yrs coll or R N	12	4	MarSept	$100	Cert & Dipl.
Tri County Hospital, Orangeburg *	A I Willis M D	High school	12 24	2	FebJune	None †	Certificate
Spartanburg General Hospital, Spartanburg	H F Plenge M D	High school	12	4	MayAug	None	Certificate
Tuomey Hospital, Sumter *	M F Parrish, M D	1 yr college	12	2	Varies	$50	Certificate
SOUTH DAKOTA							
McKennan Hospital, Sioux Falls *	D H Breit, M D	High school	24	2	FebSept	None	Certificate
Sioux Valley Hospital, Sioux Falls *	D H Breit, M D	High school	24	3	MarSept	None	Certificate
Sacred Heart Hospital, Yankton	J P Steele, M D	High school	12	3	FebAug	$80	Diploma
TENNESSEE							
Knoxville General Hospital Knoxville *	H H McCampbell, M D	High school	12	4	JanJuly	None	Certificate
Madison Sanit and Hospital, Madison College *	G H Johnson, M D	1 yr college	12	4	Quarterly		Certificate
University of Tennessee College of Medicine, Memphis *	D S Carroll, M D	High school	12	8	Varies	$80	Certificate
Meharry Medical College, Nashville *	G J Tarleton Jr , M D	2 yrs coll or R.N	24	2	Sept	†	Certificate
TEXAS							
Hotel Dieu Hospital, Beaumont	L H Ledbetter, M D	1 yr coll or R.N	12	4	JuneSept	None	Certificate
Baylor University Hospital, Dallas *	J F Miller, M D	2 yrs college	12	3	JanJuly	$100	Certificate
Methodist Hospital, Dallas *	M L Mazer, M D	High school	12	2	Varies	None	Certificate
Parkland Hospital Dallas *	R S Clayton, M D	High school	18	12	Monthly	None	Certificate
St. Paul's Hospital, Dallas *	G D Carlson, M D	High school	12	7	JanJuly	None	Diploma

APPROVED SCHOOLS FOR X-RAY TECHNICIANS—Continued

Name and Location of School	Radiologist in Charge	Entrance Requirements	Length of Training in Months	Maximum Enrolment	Classes Begin	Tuition	Certificate Diploma Degree
TEXAS—Continued							
Veterans Admin Hospital, Dallas *	J J Sazama Jr M D	High school	18	3	Every 6 mo	None	Certificate
All Saints Hospital Fort Worth *	E W Spackman M D	1 yr college	24	4	FebJuly	None †	Certificate
University of Texas Medical Branch, Galveston *	J C Rude M D	High school	12	8	FebSept	$100	Certificate
Hermann Hospital Houston *	L M Vaughan M.D	High school	12	6	Every 6 mo	$50 †	Certificate
Methodist Hospital, Houston *	C H Burge M D	High school	12	2	July	None †	Letter
St Joseph's Infirmary Houston *	P E Wigby M D	High school	24	8	Every 6 mo	None	Certificate
Santa Rosa Hospital San Antonio	M Davis M D	High school	24	4	JuneSept	$50	Certificate
Scott and White Hospital Temple *	O A Stevenson M.D	High school	24	3	Varies	None †	Certificate
UTAH							
St. Benedict's Hospital Ogden *	L. P Matthei M.D	High school	24	3	JanSept	$30	Certificate
Salt Lake County General Hospital Salt Lake City *	H P Plenk, M D	2 yrs college	12	3	July	$111	Certificate
VERMONT							
Mary Fletcher Hospital, Burlington *	A B Soule Jr, M.D	High school	12	4	Varies	$100	Certificate
VIRGINIA							
University of Virginia Hospital, Charlottesville *	V W Archer, M D	2 yrs college	12	6	MarSept	None	Certificate
Riverside Hospital Newport News *	A. K. Butler M D	High school	18	2	MarSept	None †	Certificate
Medical College of Virginia Hosp Division Richmond	F B Mandeville M.D	High school	12	15	Varies	None	Certificate
St. Luke's Hospital, Richmond	J L Tabb M D	High school	12	2	Varies	None †	Certificate
WEST VIRGINIA							
St. Luke's Hospital Bluefield	D V Kechele M.D	High school	12	3	JanJune	None	Certificate
Kanawha Valley Hospital, Charleston	W P Elkin M D	High school	12	1	Feb	None	Diploma
McMillan Hospital, Charleston	W P Elkin M.D	High school	12	1	Feb	None †	Certificate
St. Francis Hospital, Charleston	W P Elkin M.D	High school	12	1	Jan	None	Diploma
WISCONSIN							
St. Joseph's Hospital, Ashland *	J R McNutt M D	High school	24	3	Fall	None †	Diploma
Mercy Hospital, Janesville *	W T Clark M.D	High school	24	2	Sept	None	Certificate
St. Francis Hospital La Crosse	P V Hulick M D	High school	12	3	Aug	$50	Certificate
Madison General Hospital Madison *	R O Schmitz M.D	High school	18	8	Every 3 mo	None †	Certificate
St. Mary's Hospital Madison	C F Sherman M.D	High school	24	4	Sept	None	Certificate
University of Wisconsin Medical School Madison *	E A. Pohle M D	1 yr college	21	16	Every 6 wk	$5.50 per semester	Certificate
Columbia Hospital, Milwaukee *	S A. Morton M.D	High school	24	4	July	None †	Certificate
Evangelical Deaconess Hospital Milwaukee *	A. Melamed M.D	High school	12 24	5	Quarterly	$100 yr	Diploma
Milwaukee Hospital Milwaukee *	H. W Hefke M.D	High school	24	6	Quarterly	None †	Certificate
Mount Sinai Hospital Milwaukee *	M. Moel M D	High school	12	4	Every 3 mo	$100	Certificate
St. Joseph's Hospital, Milwaukee *	A. R. Altenhofen M.D	High school	24	16	Varies	$50	Certificate
St. Michael's Hospital Stevens Point *	R H. Sanders M D	High school	12	4	FebAug	None	Certificate
St Mary's Hospital Wausau *	J M Foerster, M D	High school	24	20	FebAug	$50	Diploma
St Joseph's Hospital West Bend *	A. Melamed M D	High school	12 24	1	Every 6 mo	None	Diploma

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† Students are paid a stipend.

SCHOOLS OF PHYSICAL THERAPY

At the present time 31 schools are listed by the Council on Medical Education and Hospitals for the training of physical therapists Standards in this field were approved by the House of Delegates of the American Medical Association in May 1936 These Essentials were prepared by the Council in collaboration with the Council on Physical Medicine and Rehabilitation of the American Medical Association, the American Congress of Physical Therapy and the American Physical Therapy Association Preceding the adoption of the revised Essentials of an Acceptable School of Physical Therapy by the House of Delegates in December 1949, these same groups again cooperated with the Council in the formulation of the new requirements

The physical therapy schools now approved reported a maximum enrolment of 595 students in 1949, an increase of 63 over the previous year When results of the 1948 survey were published, it was anticipated that the number of graduates in 1949 would be approximately 425, actually, there were 469 graduates reported for last year Courses are so arranged that various entrance requirements qualify students for training These include graduation from an accredited school of nursing, graduation from an accredited school of physical education and two or more years of college with satisfactory courses in biological and physical sciences When high school graduates are admitted to courses sponsored by colleges or universities, a degree is granted after completion of the prescribed college and technical training Under the present standards the minimum duration of an acceptable program is 36 weeks However, it will be noted that the length of training has now been increased to at least one year in all schools and that some are offering longer assignments, of 14, 15 and 24 months The courses which lead to an academic degree are usually of four to four and one-half years' duration

At the Mayo Clinic and the Medical Field Service School, which comprises training units at Brooke Army Medical Center, Fort Sam Houston, Texas, Fitzsimons General Hospital, Denver, and the Walter Reed General Hospital at Washington, D C, no tuition is charged In other schools the range is from $50 to $680, six schools charging an additional fee for nonresident students

In connection with each school the names of the medical and technical directors are shown The Essentials specify that the school should be under the direction of a physiatrist or other physician whose qualifications are acceptable to the Council on Medical Education and Hospitals The technical director should be a qualified physical therapist with two and preferably three years of general experience, training in educational methods and tests, should be registered or eligible for registration and should possess an academic degree. The staff should include not less than one qualified salaried instructor and, in each institution where clinical practice is carried on, not less than one qualified physical therapist for each six students.

Application for approval of physical therapy schools should be made to the Council on Medical Education and Hospitals, 535 North Dearborn Street, Chicago 10. Forms will be supplied on request. Inquiries regarding the registration of qualified therapists should be addressed to the American Registry of Physical Therapy Technicians, 30 North Michigan Avenue, Chicago 10.

APPROVED SCHOOLS OF PHYSICAL THERAPY

Council on Medical Education and Hospitals of the American Medical Association

Name and Location of School	Medical Director and Technical Director	Entrance Requirements [1]	Duration of Course	Classes Begin	Maximum Enrolment	Tuition	Certificate, Diploma, Degree
Medical Department—U S Army							
Medical Field Service School, Brooke Army Medical Center, Fort Sam Houston (San Antonio), Texas	J E Tate, Lt Col, M C Agnes P Snyder, Maj, WMSC	b e	12 mos	Oct	20	None	Certificate
Fitzsimons General Hospital, Denver	H B Luscombe, Col, M C Olena Cole, Capt, WMSC	Affiliated with Medical Field Service School					
Walter Reed General Hospital, Washington, D C	J H Kuitert, Lt Col, M C Barbara M Robertson, Capt, WMSC	Affiliated with Medical Field Service School					
Nonfederal							
Childrens Hospital, Los Angeles	S S Mathews, M D Sarah S Rogers	a b d	14 mos	Sept	14	$300	Cert or Degree
College of Medical Evangelists, Los Angeles	F B Moor, M D R Wm Berdan	a b-c	15 mos	Sept	16	$300	Cert or Degree
University of Southern California, Los Angeles*	C I Lowman, M D Charlotte W Anderson	a b d f	14 mos	FebSept	20	$594	Cert & Degree
Permanente School of Physical Therapy, Oakland Vallejo, Calif *	O L Huddleston, M D Dorothy Hong	a b d	12 mos	July	30	$200	Certificate
University of California Hospital San Francisco*	Lucile Eising, M D Margery J Wagner	d	12 mos	Sept	16	$220[2]	Cert or Degree
Stanford University, Stanford University, Calif *	W H Northway, M D Lucille Daniels	a b d-e f	12 mos	Varies	16	$620	Cert or Degree
University of Colorado Medical Center, Denver*	Harold Dinken, M D Mary Lawrence	a b-d	12 mos	Sept	12	$300[2]	Cert or Degree
Northwestern University Medical School, Chicago	F D W Hauser, M.D Gertrude Beard	a b-d	12 mos	Oct	16	$450	Certificate
State University of Iowa Medical School, Iowa City	W D Paul M D Olive Farr	e	12 mos	Sept	15	$200	Certificate
University of Kansas Medical Center Kansas City Kan *	D I Rose, M D Ruth G Monteith	d f	12 mos	FebSept	14	$ 50[2]	Cert or Degree
Bouve Boston School of Physical Education Boston	Howard Moore, M D Constance K Greene	f	4 yrs	Sept	16	$550	Dipl, Degree
Simmons College, Boston	W T Green, M D Janet B Merrill	a b-d f	1½-4½ yrs	Sept	20	$500	Dipl, Degree
Boston University College of Physical Education for Women Sargent College, Cambridge, Mass	Kenneth Christophe, M D Adelaide L McGarrett	a b c-d f	1-4 yrs	Sept	30	$495	Cert or Degree
University of Minnesota Minneapolis*	F J Kottke, M D Ruby M Green	c	2 yrs	Sept	24	$126 yr	Degree
Mayo Clinic Rochester, Minn *	F C Elkins, M D Harry E Keown	a b-c	12 mos	Sept	35	None	Certificate
Barnes Hospital, St Louis*	Sedgwick Mead, M D Beatrice F Schulz	c	2 yrs	Sept	12	$400	Degree
St Louis University School of Nursing, St Louis*	A J Kotkis, M D Sister Mary Imelda	f	4 yrs	JanSept	12	$350	Degree
Albany Hospital, Albany, N Y	J W Ghormley, M D Catharine Graham	a b d f	1 4 yrs	Sept	6	$300-$550	Cert or Degree
Columbia University College of Physicians and Surgeons, New York City*	W B Snow M D Floy L Pinkerton	a-c-e	1 2 yrs	Sept	50	$680	Cert or Degree
New York University School of Education, New York City*	G G Deaver, M D Elizabeth C Addoms	a b d	12 mos	Sept	40	$615	Cert & Degree
Duke Hospital, Durham, N C *	J D Baker, M D Helen Kaiser	a b-d	15 mos	Oct	12	$300	Certificate
Cleveland Clinic Hospital, Cleveland	S G Gamble, M D Anna Wetterhuus	c	12 mos	Oct	12	$200	Diploma
D T Watson School of Physical Therapy, Leetsdale, Pa *	Jessie Wright M.D Kathryn Kelley	a b d	12 mos	Oct	25	$300	Diploma
Graduate Hospital of the University of Pennsylvania, Philadelphia*	G M Piersol, M D Dorothy E Baethke	a b-e	12 mos	Sept	20	$400	Certificate
University of Texas School of Medicine, Galveston*	G W N Eggers, M D Ruby Decker	a b-d	12 mos	Jan	8	$163[2]	Certificate
Hermann Hospital, Houston*	O O Selke Jr, M D Mary E Kolb	a b d	12 mos	Oct	12	$300	Cert or Degree
Baruch Center of Physical Medicine and Rehabilitation, Medical College of Virginia, Richmond*	W J Lee M D Susanne Hirt	a b c d	12 mos	Sept	52	$275[2]	Certificate
University of Wisconsin Medical School, Madison*	H D Bouman, M D Margaret A Kohli	a b c f	1 4 yrs	FebSept	40	$150[2]	Cert. or Degree

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[1] Courses are so arranged that any of the entrance requirements will qualify students for training a = Graduation from accredited school of nursing, b = Graduation from accredited school of physical education c = Two years of college with science courses d = Three years of college with science courses e = Four years of college with science courses, f = High school graduation

[2] Nonresidents charged additional fee

* Male as well as female students admitted

SCHOOLS OF OCCUPATIONAL THERAPY

The original Essentials of an Acceptable School of Occupational Therapy were adopted by the House of Delegates of the American Medical Association in June 1935 The Council on Physical Medicine and Rehabilitation of the American Medical Association and the American Occupational Therapy Association gave full cooperation and advice in the preparation of these standards and in the development of the first list of six schools published three years after the acceptance of the Essentials

A complete revision of these standards was adopted by the House of Delegates in December 1949 Again the Council received the wholehearted support of the Council on Physical Medicine and Rehabilitation and the American Occupational Therapy Association in preparing revised requirements in this field. The principal changes were made in relation to organization of the faculty, medical direction of the clinical training program and the school curriculum including the course of training in affiliated hospitals

Twenty-five schools of occupational therapy are approved and listed in this issue of THE JOURNAL, exactly the same number was reported last year Because relatively few changes have occurred in this field in recent years, the shortage of technical personnel is recognized as critical To overcome this difficulty, the American Occupational Therapy Association is conducting an intensive recruitment program Serious consideration is also being given to the development of additional schools in various parts of the United States

According to the annual reports received from the approved schools, the present enrolment is 1,619 students in the schools in this country and 139 in the University of Toronto, now included in the list There were 316 graduates from the American schools and 102 in Canada Obviously the number of graduates is insufficient to meet current needs The solution of the problem lies in increasing enrolments in presently approved schools and, as previously stated, in the development of new schools by those universities colleges and hospitals that can provide adequate facilities and qualified teaching personnel

This year, for the first time, there is included in the presentation of list, the names of the directors and medical directors of the schools The following exerpt from the recently revised Essentials will be of interest

> The school of occupational therapy should have a competent teaching staff graded and organized by departments The director of the school should be a qualified occupational therapist whose qualifications are acceptable to the Council on Medical Education and Hospitals who has had at least three years clinical experience is registered or eligible for registration and has an academic degree. The clinical training in a school of occupational therapy should be under the direction of a physician or a committee of physicians whose qualifications are acceptable to the Council If a committee provides the direction the chairman should be designated as medical director An advisory committee may also be established including representatives from the departments of the college, university or medical school which participate or cooperate in the teaching of occupational therapy students

As in previous years, the length of training varies in accordance with the type of course offered The majority of the courses are conducted on a degree basis, with four or five years required for completion of training In these various training levels the minimum tuition charged is reported as $25 50 and the maximum $920

The Council on Medical Education and Hospitals of the American Medical Association, 535 North Dearborn Street, Chicago 10, will be glad to send copies of the revised Essentials on request. Application forms are also supplied by the Council Inquiries regarding registration of qualified therapists should be addressed to the American Occupational Therapy Association, 33 West 42d Street, New York 18

APPROVED SCHOOLS OF OCCUPATIONAL THERAPY

Council on Medical Education and Hospitals of the American Medical Association

Name and Location of School	Director and Medical Director	Entrance Requirements	Duration of Course [1]	Classes Begin	Graduates in 1949	Tuition per Year	Certificate Diploma Degree
University of Southern California 923½ 35th Place Los Angeles*	Margaret S Rood J R Armstrong M D	Degree	18 mos.	FebSept	7	$528	Certificate
		High sch	5 yrs	FebSept	14	$440	Cert & B S
Mills College Oakland Calif	Elsa H. Hill S M Dorinson M.D	Degree	2½ yrs	FebSept	3	$250	Certificate
		High sch	5 yrs	FebSept	3	$650	Cert & Deg
San Jose State College San Jose Calif *	Mary D Booth Charles Ianne M.D	Degree	18 mos	Varies	3	$ 25.00	Certificate
		High sch	45 mos	Varies	14	$ 25.50	Cert & Deg
University of Illinois College of Medicine 1853 W Polk St Chicago*	Beatrice D Wade S W Olson M D	High sch	5 yrs	MarSept	10	$110	Degree
State University of Iowa Iowa City*	Marguerite McDonald W D Paul, M.D		2 yrs	FebSept		$130	Certificate
		High sch.	5 yrs	FebSept	4	$120[2]	Cert & Deg.
University of Kansas Lawrence	Nancie B Greenman D L Rose M D	High sch	45 mos	FebSept	12	$125	Degree
Boston School of Occupational Therapy 7 Harcourt St Boston*	Marjorie B Greene D J MacPherson M.D	Degree	2 yrs	Sept	11	$500	Diploma
		High sch	5 yrs	Sept	10	$500	Degree
Wayne University 4841 Cass Detroit*	Barbara Jewett	Degree	2 yrs	Varies		$150	Certificate
		High sch	5 yrs	Varies	5	$150	Degree
Kalamazoo School of Occupational Therapy Kalamazoo Mich *	Marion R Spear Wallace Borgman M D	Degree	18 mos.	FebSept	2	$ 37.50[2]	Certificate
		High sch	4 yrs	FebSept	34	$ 37.50[2]	Degree
Michigan State Normal College Ypsilanti Mich *	Gladys Tiney V L. Van Duzen M.D	High sch	5 yrs	Sept	11	$ 67.50	Cert & Deg
University of Minnesota Minneapolis*	Borghild Hansen F J Kottke M.D	High sch	40 mos	Sept	7	$120[2]	Degree
College of St. Catherine 2004 Randolph St. Paul	Sister Jeanne Marie J M Ryan M.D	High sch	4½ yrs	Varies	5	$225	Degree
Washington University School of Medicine, St Louis*	Erna L Rozmarynowski R A Moore M.D	2 yrs coll.	25 mos	Sept	11	$400	Degree
University of New Hampshire, Durham*	Doris F Wilkins J J White M.D	High sch	5 yrs	Sept	8	[illegible]	Cert & Deg
Columbia University College of Physicians and Surgeons 630 W 168th St New York City*	Marjorie Fish W B Snow M.D	Degree	17 mos	Sept	14	$600	Certificate
		2 yrs. coll	27 mos.	Sept	11	$600	Degree
New York University School of Education Washington Square New York City*	Frieda J Behlen J E Sawhill M.D	1 yr coll		FebSept	2	$300	Certificate
		High sch	4½ yrs	FebSept	22	[illegible]	Cert & Deg

APPROVED SCHOOLS OF OCCUPATIONAL THERAPY—Continued

Name and Location of School	Director and Medical Director	Entrance Requirements	Duration of Course[1]	Classes Begin	Graduates in 1949	Tuition per Year	Certificate, Diploma, Degree
Ohio State University, Columbus*	Martha E Jackson R H Jacques, M D	High sch	4 yrs	Varies	18	$ 90	Degree
Philadelphia School of Occupational Therapy, 419 S 19th St, Philadelphia	Helen S Willard R C Buerki, M D	Degree	18 mos	Sept	12	$500	Diploma
Texas State College for Women, Denton	Fanny B Vanderkool O T Woods, M D	High sch	42 mos	Sept		$600	Degree
Richmond Professional Institute, 901 W Franklin St, Richmond, Va *	H Elizabeth Messick J Barrett, M D	High sch	5 yrs	FebSept	5	$ 50[2]	Cert & Deg
		Degree	2 yrs	Sept	1	$200[2]	Certificate
		1 yr coll	3 yrs	Sept	4	$200[2]	Certificate
			5 yrs	Sept		$200[2]	Degree
College of Puget Sound, 18th and Warner, Tacoma, Wash *	Edna E Bell A J Hermann, M D	Degree	3 yrs	FebSept	1	$350	Certificate
		High sch	5 yrs	FebSept	1	$300	Cert & Deg
University of Wisconsin, Madison*	Caroline G Thompson H D Bouman, M D	High sch	5 yrs	Sept	19	$150[2]	Cert & Deg
Milwaukee Downer College, Dept of Occupational Therapy 2512 E Hartford, Milwaukee	Henrietta McNary M C Borman, M D	High sch	5 yrs	Sept	20	$920	Dipl or Deg
Mount Mary College, 92d and Burleigh, Milwaukee	Sister Mary Arthur	High sch	5 yrs	Sept	12	$200	Cert & Deg
University of Toronto, Toronto, Ontario, Canada	Helen P LeVesconte W J Dunlop, M D		3 yrs	Sept	102	$210	Diploma

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[1] Duration of course is expressed in academic years or in number of months
[2] Nonresidents charged additional fee
* Male as well as female students admitted

SCHOOLS FOR MEDICAL RECORD LIBRARIANS

In June 1942 a resolution was introduced in the House of Delegates requesting that the American Medical Association undertake the standardization, inspection approval and listing of schools for the training of medical record librarians The Reference Committee on Medical Education expressed the opinion that the need of such standardization was imperative and that it should properly be carried out by the Council on Medical Education and Hospitals Consequently, standards were formulated by the Council with the assistance of the American Association of Medical Record Librarians after all existing schools were inspected These Essentials were officially adopted by the House of Delegates in 1943 and subsequently revised and accepted by the House, in December 1945 and December 1949 At the present time 17 schools are approved, as compared with 13 in 1948 and 10 on the originally accepted list

The recently revised Essentials specify that schools for the training of medical record librarians may be conducted by general hospitals having adequate teaching material and personnel, approval may also be extended to colleges, universities and medical schools having suitable hospital facilities It is essential that a competent teaching staff be supplied by the schools, the director to be responsible for the actual conduct of the training course and proper supervision of students

A total of 143 students are enrolled in the schools currently approved, an increase of 25 over the previous year Twelve of the approved schools graduated 67 students in 1949, five of the schools being unable to supply this information Candidates for admission should be proficient in typing and shorthand and, in addition, should fulfil one of the following requirements

(*a*) Completion of two academic years of study in a college of liberal arts approved by a recognized accrediting agency

(*b*) Graduation from a school of nursing recognized by a state board of nurse examiners

Names of directors, entrance requirements, duration of courses and other data of interest are included in the accompanying list Scholarships are offered by the National Foundation for Infantile Paralysis, which also provides inservice training programs The institutes sponsored by the American Hospital Association in cooperation with the American Association of Medical Record Librarians are now well established

Application for approval should be made to the Council on Medical Education and Hospitals of the American Medical Association, 535 North Dearborn Street, Chicago 10 Inquiries regarding the registration of qualified medical record librarians should be addressed to the American Association of Medical Record Librarians, 22 East Division Street, Chicago 10

APPROVED SCHOOLS FOR MEDICAL RECORD LIBRARIANS

Council on Medical Education and Hospitals of the American Medical Association

Name and Location of School	Director	Entrance Requirements†	Duration of Course	*Classes Begin*	mum Enrolment	Tuition	*Certificate, Diploma, Degree*
Herrick Memorial Hospital, Berkeley, Calif *	Helen M Waterman	2 yrs college	12 mos	FebAug	3	$150	Certificate
Samuel Merritt Hospital, Oakland, Calif	Alice K Swearingen	2 yrs coll or R N	12 mos	FebAug	6	$150	Certificate
Univ of Colorado School of Med & Hosps, Denver*	Ruby M Williamson	High school	4 yrs	Sept	14	$208	Degree
Grant Hospital, Chicago*	Mary J Bitter	2 yrs coll or R N	12 mos	FebSept	8	$215	Certificate
St Joseph Hospital, Chicago	Irene M Grabowski	2 yrs college	12 mos	MarSept	6	$150	Diploma
Wesley Memorial Hospital, Chicago	Marjorie R Quandt	2 yrs coll or R N	12 mos	Sept	8	$275	Certificate
U S Marine Hospital, Baltimore*	John L Wilson, M D	2 yrs college	12 mos	Sept	12	None	Certificate
Massachusetts General Hospital Boston*	E Louise Seymour	2 yrs coll or R N	12 mos	Sept	8	$150	Certificate
Mount Carmel Mercy Hospital, Detroit	Sister M Pauline	2 yrs coll or R N	12 mos	Sept	6	$150	Diploma
College of St Scholastica, Duluth, Minn	Patricia J Pierce	High school	4½ yrs	Sept	10	$150 yr	Degree
Homer G Phillips Hospital, St Louis*	Esther M Sherard	2 yrs coll or R N	12 mos	FebSept	4	$150 yr	*Certificate*
St Louis University, St Louis*	Sister Mary Servatia	High school	4 yrs	FebSept	16	$300 yr	Degree
St Michael's Hospital, Newark, N J	Sister Maria Consilia	2 yrs coll or R N	12 mos	Sept	4	$100	Certificate
St Mary's Hospital, Brooklyn*	Sister Mary Laurentia	2 yrs coll or R N	12 mos	Sept	8	$125	Certificate
Duke Hospital Durham, N C *	Jo Harned Bufkin	Degree	12 mos	Oct	12	$175	Certificate
Graduate Hosp of the Univ of Penn, Philadelphia	Gertrude Hanauer	2 yrs coll or R N	12 mos	Sept	16	$300	Certificate
Providence Hospital, Seattle, Wash	Sister Peter Olivaint	2 yrs coll or R N	12 mos	Sept	2	$150	*Certificate*

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* Male as well as female students admitted
† All students are required to be proficient in typing and shorthand

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SATURDAY, MAY 6, 1950

HOSPITAL SERVICE IN THE UNITED STATES

The annual hospital report of the Council on Medical Education and Hospitals published in this issue of THE JOURNAL shows a continued increase in the volume of hospital service in the United States. The total of 16,659,973 patients admitted in 1949 is higher than in any previous report and represents a net gain of 237,199 compared with 1948. Increases were not uniform throughout the hospital field, as the federal, state and municipal hospitals reported a reduction of nearly 80,000 admissions while other governmental groups had an increase of 47,000. The principal gain, however, was in the nongovernmental hospitals, where the number of patients increased by 268,000. These totals do not include hospital births, which numbered 2,820,791, compared with 2,794,281 in 1948.

The governmental hospitals had 4,258,785 admissions, or 25.6 per cent of all patients admitted in 1949, whereas the nongovernmental group reported 12,401,188, or 74.4 per cent. When classified by the type of service, however, it is found that the general hospitals admitted 15,450,311, or 92.8 per cent, the psychiatric institutions 308,055, or 1.8 per cent, the tuberculosis sanatoriums 113,078, or 0.7 per cent, and the other hospital groups 788,529, or 4.7 per cent. The general hospitals listed 2,744,268, or 97.3 per cent, of in 1949, and, with an average daily census of 429,000, they carried 35 per cent of the daily patient load reported in all registered hospitals. In addition, the general hospitals listed 2,744,268, or 97.3 per cent of all hospital births. The hospitalization of psychiatric patients continues to increase, and the present daily census of 675,096 is the highest average that has been recorded in this field. This total indicates that 55 per cent of the occupied hospital beds are now being utilized for psychiatric care. The tuberculosis sanatoriums, with an average census of 69,476, have 5.7 per cent of the total patient load, while the remaining hospital groups report 4.2 per cent.

In the last year the number of hospitals registered by the American Medical Association has increased from 6,335 to 6,572. Included in this group are many of the hospitals recently completed under the National Hospital Program, which to date has authorized more than 1,000 projects in the various states and territories. Further growth may thus be anticipated as these and other institutions become available in the hospital field. The bed capacity has increased to 1,439,030, including 1,025,155 in the governmental hospitals and 413,875 in the nongovernmental group. A further classification shows 40 per cent of the beds distributed in general hospitals, 49 per cent in psychiatric institutions, 5.8 in tuberculosis sanatoriums and 5.2 in other groups. Although gains occurred both in the number of beds and in the average daily census last year, there was a reduction in the over-all hospital occupancy rate from 85.5 to 85.1 per cent. The rate in the governmental hospitals was increased, however, from 89.0 to 89.3 per cent, whereas the average occupancy in the nongovernmental group was reduced from 76.7 to 74.7. There was likewise a reduction in the length of stay in the general hospitals, where patients remained an average of 10.1 days, compared with 10.5 in the previous year. In the governmental general hospitals the stay per patient was 17.2 days, which is more than twice as long as the average of 8.0 reported in the nongovernmental general hospital group.

While the primary purpose of the modern hospital is the care and welfare of the sick, an increasingly important function is the hospital's role as an educational institution. Hospitals are participating to an increasing degree in the training of interns, resident physicians, student nurses, technicians and other hospital personnel. At present 799 hospitals offer approved internships, while 1,079 have received approval for residencies in specialties. Accredited schools of nursing education, which now total 1,151, reported a student enrolment of 99,066 in 1949. In the reports submitted by individual hospitals, there was also evidence of increased interest in the development of suitable training programs for practical nurses. A total of 433 hospitals are currently approved for the training of medical technologists, 267 for x-ray technicians, 31 for physical therapists, 25 for occupational therapists and 17 for medical record librarians. Hospitals have been generous in their support of educational functions and should be commended for the many contributions they have made in the training of personnel essential to the maintenance of high standards of hospital care.

OUR WAY OF LIVING

Time after time, self-seeking bureaucrats and advocates of foreign ideologies have said that the people of the United States are not capable of solving their own problems Repeatedly our nation is urged to turn aside the things on which it has grown and prospered If we were to believe the exhortations of the propaganda-producing supporters of socialism, we would admit we cannot face life's problems and would resign ourselves to the whims of a government-controlled planning board

But are we as unresponsive and indifferent as the socialistic planners claim? Are we incapable of independent and ingenious judgment? Of course not This nation consists of men and women who have learned what freedom offers, of men and women who want to maintain independence and grounds for incentive, of men and women who truly are concerned with each other's welfare and who are willing to offer help when it is needed Two recent reports in a Chicago newspaper are typical of those appearing throughout the country They reflect what can happen in a country when people can move freely and without waiting for orders from a higher echelon

A 14 month old child in Michigan swallowed a bean and began choking A physician was called and the child rushed to a hospital for roentgenograms, which revealed a swollen bean lodged in the right bronchus The lung had collapsed The physician recommended transferal to a Chicago hospital, 107 miles away The child was placed in an ambulance and escorted by Michigan state police to the Indiana border, where she was met by Indiana state police Within a few miles the motor of the ambulance burned out Another ambulance was called, but the roentgenograms were forgotten When their absence was detected a city police squad raced back for them Then the oxygen supply in the second ambulance failed A nearby city fire department which was following the drive by radio heard of the lack of oxygen and dispatched two firemen, who intercepted the ambulance to provide a new oxygen tank At Chicago, city police met the ambulance and escorted it to the hospital Within minutes the bean was removed The trip through three states took only two and one-half hours in spite of all the delays and emergencies It was completed by community-minded men who donated their time not by government decree but through human kindness and community-inspired cooperation

In another state, Montana, a crew of trainmen had battled a blizzard for hours and finally reached their destination exhausted On arrival the conductor was given a message requesting help A 7 year old girl with pneumonia and possibly a ruptured appendix must be taken to a hospital 50 miles away Only a train could be used for transportation Without hesitation the train crew elected to man the train if the railroad would release it In minutes the release had been secured A second crew removed snow from the tracks Forty additional volunteers rode on the train to shovel it out of snowbanks Less than two hours later the girl was in a hospital

These two instances can be repeated many times in many parts of the country They are part of our way of living As the father of the 7 year old girl said, "We've sure got wonderful people in our home town" That is one of the wonderful things about the United States, it has a lot of home towns which do not need federal domination to care for their citizens These towns are filled with wonderful people

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Current Comment

TECHNICAL PERSONNEL

In the present report on hospital service in the United States consideration has also been given to the training of medical technologists, x-ray technicians, physical therapists, occupational therapists and medical record librarians As each of these fields is an essential adjunct in the hospitalization and care of the sick, it is of interest that in the last three years the schools of medical technology have increased from 337 to 433 and the annual number of graduates from 1,206 to 1 720 Similarly, the schools for x-ray technicians advanced from 211 to 267 with a corresponding increase in total graduates from 499 to 764 In physical therapy, where the number of graduates rose from 383 to 469, the schools now total 31, compared with 25 in 1947 The field of occupational therapy has shown relatively few changes in the last three years, during this period 25 schools have been maintained, with about 400 graduates each year The schools for medical record librarians, which constitute the smallest group, increased from 12 in 1947 to 17 in 1949, the number of graduates showing only a slight gain, however, from 63 to 67 While the present report shows an increase in the total number of graduates, it is generally recognized that the supply of technical personnel is not sufficient to meet the existing needs in all fields This continued shortage is of concern not only to consumers of technical services but also to the agencies that are interested in the maintenance of high standards of training and the production of safe, competent personnel It is important, therefore, that continued efforts be made to recruit students, so that all available places in existing schools can be filled, and that full encouragement be given to the development and organization of new schools in areas where adequate facilities and teaching personnel are available in accordance with present standards The Council on Medical Education and Hospitals is working in close cooperation with the national agencies representing the various technical fields, and it was with the assistance of these groups that educational requirements were originally established Last year the

Council and the respective national agencies made further revisions in the standards pertaining to medical technology, physical therapy, occupational therapy and medical record librarians These changes, described in THE JOURNAL Dec 17, 1949, were officially adopted by the House of Delegates of the American Medical Association on Dec 8, 1949

THE UNITED STATES PHARMACOPEIAL CONVENTION

The decennial meeting of the United States Pharmacopeial Convention which will be held in Washington, D C, May 9 and 10, promises to be one of the most important Convention meetings ever held by this organization Representatives of many organizations will be present The medical profession will and should be well represented through, for example, medical schools and medical associations The delegates attending this Convention have an unusual responsibility, as they must act on a proposed constitution and by-laws which includes some important changes to strengthen, yet simplify, the operation of the Convention These proposed changes follow intensive study by a Committee on Constitution and By-Laws authorized at the 1940 decennial meeting of the United States Pharmacopeial Convention and by its Board of Trustees The importance of assuring continued leadership cannot be emphasized too strongly The leadership of the Pharmacopeia in this country and elsewhere in the world deserves commendation and complete support from medical, pharmacal and other professions—in fact, from everyone The tests and standards in this book are recognized in the Federal Food, Drug and Cosmetic Act, they are "official" They also are official in a number of Latin American countries When the delegates return from the Convention they should have worth while reports to offer to their sponsoring organizations These reports should be read by all fellow members

NATIONAL HEARING WEEK

The week of May 7-13 has been designated as National Hearing Week The number of persons with limited hearing in the United States cannot be stated accurately, but as many as 12,000,000 adults and 3,000,000 children may have a loss of hearing acuity in one or both ears Thus 1 in 10 persons has lost part of his hearing Some are rehabilitated by the fenestration operation, others are helped by lip reading and many by hearing aids Of the 15,000,000 probably only 3,000,000 require hearing aids The best estimates indicate that approximately 1,000,000 persons are wearing hearing aids at the present time. The American Hearing Society, formerly known as the American Society for the Hard of Hearing, was founded in 1919 The central office in Washington, D C, and 119 chapters in major cities throughout the country provide eight types of service to assist hard-of-hearing children and adults These services vary with the chapter, but a typical chapter offers at least lip reading instruction, speech correction, voice improvement, audiometer tests, opportunity to try out hearing aids, auditory training and an opportunity for hard-of-hearing persons to obtain recreation and for newly afflicted persons to achieve confidence There are more than 8,000 individual chapter members The society is inaugurating National Hearing Week to point out the seriousness of the hearing problem, to assist in the awakening of the general public to a better understanding of the national hearing problems and to focus the attention of the organized civic groups in business and industry, the press and radio and television broadcasting industries on the problems of the hearing-handicapped persons In its 31 years of existence the American Hearing Society has cooperated with the medical profession It has urged the audiometric examination of public school children and has encouraged the cooperation of the medical profession in this activity Twenty-seven states do not require hearing tests for school children The society's efforts represent the type of voluntary activity that depends on the community for its success They reflect also the type of community effort that is self rewarding

THE DISTINGUISHED SERVICE AWARD

The thirteenth award of the Distinguished Service Medal of the American Medical Association will be made in San Francisco at the Inaugural Meeting on Tuesday, June 27, 1950 This award, one of the highest honors the Association can bestow on its Fellows, has been made each year since 1938 when the first Medal was presented to Dr Rudolph Matas of New Orleans "for meritorious services in the science and art of medicine" Any Fellow of the American Medical Association may submit nominations, which should be sent, together with a record of the scientific attainments of the nominees, to Dr George F Lull, Secretary of the Association, 535 North Dearborn Street, Chicago 10, who will refer them to the Committee on Distinguished Service Award After consideration of all nominations received, the Committee will submit five names to the Board of Trustees and the Board will select three of the five for presentation to the House of Delegates at its first meeting in San Francisco The House of Delegates makes the final selection by official ballot Thus far, those to whom the Distinguished Service Medal has been awarded have all been men of the utmost distinction, in whose selection the American Medical Association, as well as the recipients themselves, has been honored Besides Dr Matas, the Medal has been presented to Dr James B Herrick of Chicago, Dr Chevalier Jackson of Philadelphia, Dr James Ewing of New York, Dr Ludvig Hektoen of Chicago, Dr Elliott P Joslin of Boston, Dr George Dock of Pasadena, Calif, Dr George R Minot of Boston Dr Anton J Carlson of Chicago, Dr Henry A Christian of Boston, Dr Isaac A Abt of Chicago and Dr Seale Harris of Birmingham Ala

ORGANIZATION SECTION

Official Notes

HOUSTON MEETING CONTRACT SIGNED

The American Medical Association has signed a contract with the City of Houston, Texas, for the use of the Sam Houston Coliseum and Music Hall in connection with the Fifth Annual A M A Clinical Session in that city, Dec 4-7, 1951 The two places will be used for the scientific sessions and the scientific and technical exhibits The House of Delegates meetings will be in one of the larger hotels, yet to be selected The A M A Clinical Session this year will be held in Denver, November 28-December 1

COMMITTEE ON VETERANS AFFAIRS

The Special Committee on Veterans Affairs of the House of Delegates was appointed by the Speaker of the House in December 1949 to consider the Shoulders plan for the provision of medical care for veterans with non-service-connected disabilities It has held two meetings, at which representatives of the American Legion, American Hospital Association, Tennessee State Medical Association, the former medical director of the Veterans Administration, Dr Paul R Hawley, and others have presented their views The committee is now in the process of collecting additional material and may hold another meeting in San Francisco in June at the time of the Annual Session Physicians who are desirous of presenting additional data should write to the Chairman of the Committee, Dr B R Kirklin, 102 Second Avenue S W , Rochester, Minn

CONFERENCES ON VOLUNTARY HEALTH INSURANCE

The Council on Medical Service of the American Medical Association has been authorized by the Board of Trustees to sponsor a series of Regional Conferences on Voluntary Health Insurance throughout the United States The first of these meetings has been scheduled for Fort Worth, Texas, on May 6 The president of the State Medical Association of Texas, Dr G V Brindley, of Temple, has been notified that invitations were sent to the states of Arkansas, Kansas, Louisiana, Mississippi and Oklahoma, as well as Texas

Four such conferences have been scheduled, the others will be held in Raleigh, N C , Salt Lake City, and Sioux Falls, S D Dates for only two have been set so far—Fort Worth, May 6 and Raleigh, May 13 Invitations to the Raleigh meeting will be sent to Kentucky, Virginia, Tennessee, North and South Carolina, Alabama, Georgia and Florida Invitations to the Salt Lake City meeting will cover the states of Idaho, Wyoming, Nevada, Utah, Arizona and New Mexico The Sioux Falls conference will include the states of Iowa, Minnesota and North and South Dakota

Washington Letter

(From a Special Correspondent)

May 1, 1950

Veterans Hospital Program in Senate Hands

The Senate Labor and Public Welfare Committee has received H R 5965, the bill passed by the House April 24 which directs Veterans Administration to proceed with construction of 16,000 additional hospital beds at an approximate cost of $240,000,000 Although the measure was sent to the Senate committee for action immediately after its passage by the House, no forwarding steps were taken pending the Florida primary election May 2 This was in deference to Senator Claude Pepper, campaigning for renomination He is the foremost Senate advocate of proceeding with expansion of veterans hospitals and was chairman of a special subcommittee of the Senate Labor and Public Welfare Committee which conducted lengthy hearings last year on the 16,000 bed cutback ordered by President Truman and which H R 5965, in effect, would abrogate

Ten High-Paying Medical Research Posts Created

When the U S Civil Service Commission, late in April, announced establishment of several hundred high-salaried positions in the federal government, a breakdown by agencies disclosed that ten of these are in the National Institutes of Health, Bethesda, Md Nine of the positions are still unfilled The salary range for each is $11,200 to $12,000 per year Previously the highest paid Civil Service post was $10,000 Public Health Service officials noted that all the approved positions will be filled by bench researchers, none by administrators

The jobs are classified as GS-16 The scientists who will fill them will comprise key personnel of the $40,000,000 clinical research center now under construction at the National Institutes of Health Designations are as follows chief endocrinologist, Experimental Biology and Medicine Institute, biophysicist in nucleonics, same institute, director of clinical research, National Institute of Mental Health, principal biochemist, National Heart Institute, neurologist, National Institute of Mental Health, immunologist, Microbiological Institute, virologist, same institute, steroid chemist, Experimental Biology and Medicine Institute, principal biochemist, National Cancer Institute, and scientific director The one position which now has an incumbent is that of principal biochemist in the National Cancer Institute

Leaders in Medical Sciences Honored

Americans prominent in the medical sciences are among the 32 newly elected members, including two foreign associates, of the National Academy of Sciences The announcement was made April 26 at the close of the Academy's annual meeting in Washington

New members include Drs Lyman C Craig and R Lorente de No, Rockefeller Institute for Medical Research, Lester R Dragstedt, chairman, department of surgery, University of Chicago, Edward Calvin Kendall, head, section on biochemistry, Mayo Clinic, Fritz A Lipmann, head, biochemical research laboratory, Massachusetts General Hospital, Frank C Mann, professor of experimental medicine, Mayo Foundation, and Kenneth F Maxcy, professor of epidemiology, School of Hygiene and Public Health, Johns Hopkins University

Dr Charles Herbert Best, of the University of Toronto, co-discoverer of insulin, was one of the two foreign associates elected by the academy The other was Albert Jan Kluyver, professor of microbiology, Technical University of Delft, Netherlands

Countercharges Made in Antihistamine Case

The Federal Trade Commission on April 20 made public the formal answer filed by Bristol-Myers Co to charges by FTC challenging the accuracy of the company's advertisements for its antihistamine cold remedy "Resistab" At the same time the commission took an unusual step when it ordered stricken from the record certain countercharges made by Bristol-Myers and indicated that disciplinary action may be taken against counsel for the company

The objectionable statements were that the commission is predisposed to issue a cease and desist order against the advertised claims for "Resistab" because "it fears that failure on its part to do so will result in severe criticism of it and possible adverse action against it by various persons, organizations and groups " Without citing any actual names, the company's answer simply identified them as "organized medical groups, on which it (FTC) depends to furnish it, gratis, professional witnesses in its proceedings which involve medical questions," together with various members of the House and Senate

The legal answer, submitted in behalf of Bristol-Myers by Isaac W Digges and Gilbert H Weil, New York attorneys, also charged that the commission stands in fear of adoption of Hoover Commission recommendations that its authority over drug advertising be transferred to the Food and Drug Administration of the Federal Security Agency Because of these various factors, the manufacturer of "Resistab" cannot receive "the disinterested and unprejudicial trial to which it is entitled by law,' according to the answer

In anticipation of possible action against the two attorneys, who could be disbarred from practice before this federal agency, the commission directed that the objectional charges shall not be 'physically removed' from the record but only "considered stricken"

Tuberculosis Association Officers Elected

Alton S Pope, M D, of Nortonsville Mass, was elected president-elect of the National Tuberculosis Association at its annual meeting in Washington April 24-28 David T Smith M D, of Durham, N C, is president for 1950-1951 Three other physicians selected as officers are Dr Leonard A. Scheele, Surgeon General of Public Health Service, honorary vice president, Dr Howard W Bosworth Los Angeles, vice president, and Dr E Stuart Willis, McCain, N C, secretary Dr Pope is deputy commissioner of public health and director of hospitals and sanatoriums, Massachusetts State Department of Public Health

Three of the seven members of the newly elected executive committee are doctors of medicine Frank Jennings Indianapolis R D Thompson, West Palm Beach and Sidney J Shipman, San Francisco

Newly elected members of the board of directors include Dr William D Province, Franklin, Ind, Dr A A Herold, Shreveport La, Dr John A Sims, Alexandria, Va, Dr John F Steele, Tacoma Wash, Dr John D Steele Milwaukee, Dr Robert G Bloch, Chicago, Dr W Roderick Brown, Pittsburgh, Dr Harry S Mustard, New York City, and Dr Huston K Spangler, Worcester, Mass

Dr John H Skavlem, of Cincinnati, was elected president-elect of the American Trudeau Society, to succeed Dr Grover C Bellinger, Salem, Ore

May 9 Scheduled for Hearings on Postal Increases

Representatives of certain voluntary associations active in public health are among the groups which have asked to testify at public hearings May 9 on proposed increases of third class postal mailing rates The hearings are being conducted by the Senate Post Office and Civil Service Committee. The bill under consideration (H R 2945) grants no exemptions to medical, public health and other types of organizations which rely to a great extent on third class mailing privileges for transmission of educational and fund-raising literature

Coming Medical Meetings

American Medical Association San Francisco June 26 30 Dr George F Lull 535 North Dearborn St Chicago 10 Secretary

Aero Medical Association Chicago May 29 31 Dr Thomas H Sutherland 214 S State St Marion Ohio Secretary

American Association of Genito-Urinary Surgeons Hershey Penn Hotel Hershey May 24 26 Dr Norris J Heckel 122 S Michigan Ave. Chicago 3 Secretary

American Association of the History of Medicine Boston May 21 23 Dr Benjamin Spector 416 Huntington Ave Boston 15 Secretary

American Association on Mental Deficiency Columbus Ohio Hotel Deshler Wallick May 16-20 Dr Neil A. Dayton P O Box 96 Willimantic, Conn Secretary

American Broncho-Esophagological Association San Francisco Mark Hopkins Hotel May 25 26 Dr Edwin N Broyles 1100 N Charles St Baltimore 1 Secretary

American College of Chest Physicians San Francisco June 22 25 Mr Murray Kornfeld 500 N Dearborn St Chicago 10 Executive Secretary

American College of Radiology San Francisco June 25 Mr William C. Stronach 20 N Wacker Drive Chicago 6 Executive Secretary

American Congress on Obstetrics and Gynecology New York Hotel Pennsylvania, May 14 19 Dr F Bayard Carter Duke Medical School Durham N C Secretary

American Dermatological Association Jasper National Park Alberta Canada June 18 22 Dr Louis A Brunsting 102 Second Ave S W Rochester Minn Secretary

American Diabetes Association San Francisco Hotel Whitcomb June 24 25 Dr John N Reed 1 Nevins St Brooklyn 17 Secretary

American Geriatrics Society New York Hotel Commodore, June 1 3 Dr Malford W Thewlis 25 Mechanic St Wakefield R I Secretary

American Gynecological Society White Sulphur Springs W Va. The Greenbrier May 11 13 Dr Norman F Miller 1313 E. Ann St., Ann Arbor Mich Secretary

American Hearing Society Chicago Drake Hotel June 15 17 Mrs. Frances E Lee 817 Fourteenth St. N W Washington 5 D C. Secretary

American Heart Association San Francisco Fairmont Hotel June 22 25 Dr John J Sampson 1775 Broadway New York 19 Secrteary

American Laryngological Association San Francisco May 23 24 Dr Louis H Clerf 128 S Tenth St. Philadelphia 7 Secretary

American Laryngological Rhinological and Otological Society San Francisco May 25 27 Dr C. Stewart Nash 277 Alexander St. Rochester 7 N Y Secretary

American Medical Women's Association Carmel Calif June 20 22 Dr Grace Talbott 909 Hyde St. San Francisco 9 Secretary

American Neurological Association Atlantic City Claridge Hotel June 12 14 Dr H Houston Merritt 710 W 168th St New York 32 Secretary

American Ophthalmological Society Hot Springs Va The Homestead May 31 June 2 Dr Maynard C Wheeler 30 W 59th St. New York 19 Secretary

American Orthopedic Association Virginia Beach Va May 23 26 Dr C. Leslie Mitchell Henry Ford Hospital, Detroit 2 Secretary

American Otological Society San Francisco May 21 22 Dr Gordon D Hoople 1100 E Genesee St Syracuse 10 N Y Secretary

American Pediatric Society French Lick Ind May 8 10 Dr Henry G Poncher 1819 W Polk St. Chicago 12 Secretary

American Radium Society New York Roosevelt Hotel May 25 26 Dr Hugh F Hare 605 Commonwealth Ave. Boston 15 Secretary

American Society for the Study of Sterility San Francisco Sir Francis Drake Hotel June 24 25 Dr John O Haman 490 Post St San Francisco 2 Secretary

American Society of X Ray Technicians Columbus Ohio Deschler Wallick Hotel May 28 June 2 Genevieve J Eilert R T 16 Fourteenth St Fond du Lac Wis Executive Secretary

American Urological Association Washington D C Hotel Statler May 29 June 1 Dr Charles H deT Shivers Boardwalk National Arcade Bldg Atlantic City N J Secretary

Association for Physical and Mental Rehabilitation Memphis Tenn Hotel Peabody May 23 27 Mr Benjamin Forman 57 Granger St. Canandaigua N Y Secretary

Association for the Study of Internal Secretions San Francisco June 23 24 Dr Henry H Turner 1200 N Walker St Oklahoma City 3 Secretary

Conference of Presidents and Other Officers of State Medical Associations San Francisco Palace Hotel June 25 Mr John E. Farrell 106 Francis St. Providence, R I Secretary

Illinois State Medical Society Springfield Illinois State Armory May 23 25 Dr Harold M Camp 224 S Main St. Monmouth Secretary

Kansas Medical Society Wichita May 15 18 Dr D D Vermillion 512 New England Bldg Topeka Secretary

Maine Medical Association Poland Spring June 18 29 Dr Frederick R. Carter 142 High St Portland 3 Secretary

Massachusetts Medical Society Boston Hotel Statler May 16-19 Dr H Quimby Gallupe 8 Fenway Boston 15 Secretary

Medical Library Association Boston June 19 22 Miss Helen Hlavac 209 East 23d St New York 10 Secretary

Minnesota State Medical Association Duluth June 12 14 Dr B B Souster 496 Lowry Medical Arts Bldg St Paul 2 Secretary

Mississippi State Medical Association Jackson May 9 11 Dr T M Dye Box 295 Clarksdale Secretary

New Jersey Medical Society of Atlantic City Haddon Hall May 22 24 Dr Marcus H Greifinger 315 W State St Trenton 8 Secretary

New York Medical Society of the State of New York May 8-12. Dr Walter P Anderton 292 Madison Ave New York 17 Secretary

North Dakota State Medical Association, Grand Forks May 27 30 Dr O A Sedlak 702 First Ave. S Fargo Secretary

Ohio State Medical Association Cleveland May 16 19 Mr Charles S Nelson 79 E State St Columbus 15 Executive Secretary

Oklahoma State Medical Association Oklahoma City June 4 7 Dr Lewis J Moorman 210 Plaza Court Oklahoma City Secretary

Rhode Island Medical Society Providence R. I Medical Library May 10 11 Dr Morgan Cutts 106 E Francis St Providence 3 Secretary

Society of American Bacteriologists Baltimore May 15 19 Dr John E. Blair 1919 Madison Ave New York 35 Secretary

South Carolina Medical Association Myrtle Beach May 16-18 Dr Julian P Price 105 W Cheves St Florence Secretary

South Dakota State Medical Association Mitchell May 20-23 Dr Roland G Mayer 22½ S Main St Aberdeen Secretary

Western Association of Industrial Physicians and Surgeons San Francisco June 25 Dr Christopher Leggo C & H Sugar Refining Corp Crockett Calif Secretary

Western Branch American Public Health Association, Portland, Ore. May 30-June 1 Mr Walter S Mangold University of California Berkeley Calif Secretary

International Meetings

International and Fourth American Congress on Obstetrics and Gynecology New York Hotel Pennsylvania May 14 19 Dr Fred L. Adair 161 E Erie St Chicago 11 Information Headquarters

International Congress on Asthma Mont Dore France June 3-4 Secretariat 59 rue Bonaparte Paris France

GOVERNMENT SERVICES

NAVY

RESEARCH ON RADIOACTIVE GALLIUM

Comdr Horace C Dudley (MSC) has been appointed a consultant to the Medical Division of the Oak Ridge Institute of Nuclear Studies He has been a leader in a study of radioactive gallium by the Navy for three years and will assist in further research on this element by the Medical Division of that Institute Radioactive gallium is of special interest to the medical profession because of its short half-life (14 3 hours) and a tendency to concentrate in bony structures Past research has indicated that it may eventually prove to be of value in the treatment of certain bone disorders Its short life makes control of the radiation dosage much easier and reduces the possibility of prolonged residual radiation effects Since selective location of the dosage may be made in desired bony structures, these therapeutic advantages over other materials warrant further investigation Commander Dudley and others at the Naval Medical Research Institute, Bethesda, Md, made the primary studies of this element, and cooperative studies on animals have since been made in conjunction with the National Cancer Institute Bethesda

DUTY UNDER INSTRUCTION

The following medical officers have been nominated for duty under instruction in the Navy's Graduate Training Program

Comdr Anton Zikmund, to instruction at the Armed Forces Staff College, Norfolk, Va

Lieut (jg) Frederick W Meyer Jr, to a residency in general surgery Naval Hospital St Albans N Y

Lieut (jg) Jack W Millar, to instruction in public health, School of Public Health Harvard University, Boston

Lieut (jg) James M Poynter to a residency in general surgery Naval Hospital San Diego Calif

Lieut (jg) John H Schulte to instruction in submarine medicine, Submarine School Submarine Base New London, Conn

Lieut (jg) Joseph H Lawson (MC) to a fellowship in radiology, Mallinckrodt Institute, Washington University School of Medicine St Louis

PERSONAL

Reserve officers Comdr Marvin Hollida Porterfield of Martinsburg, W Va, Lieut (jg) Robert W Ard of Hagerstown, Md, and Lieut (jg) Thomas W Moir of Detroit, have requested active duty

PUBLIC HEALTH SERVICE

RADIATION COURSES FOR HEALTH OFFICERS

The expanding peace time use of radiation and its relation to health are being studied in a series of ten courses for state and local health officers The subjects of the courses include nuclear radiation, radiation-producing machines and other sources of ionizing radiation radiation absorption, biologic and medical effects of radiation, radiation detection and measurements, disposal of radioactive wastes and decontamination The first five courses have already been held in Atlanta, New York, Chicago, Cleveland and Boston The others are scheduled as follows

Washington D C May 8 9
Denver May 16 17
San Francisco May 22 23
Dallas May 25 26
Kansas City Mo, May 31 June 1

The courses are sponsored by the Radiological Health Branch of the Public Health Service Attendance is restricted to designated state local and other health officials who are or will be concerned with various phases of public health control of ionizing radiation

UNTREATED SEWAGE FROM HOMES

Sewer systems serving the homes of 25 million persons in the United States discharge their wastes into public waterways without treatment Wastes from homes occupied by another 25 million persons are only partially treated According to Assistant Surgeon General Mark D Hollis, "The discharge of raw or incompletely treated sewage into our streams does not necessarily mean that we are destroying a vital natural resource In many instances the natural ability of a stream to purify itself of a limited amount of pollution works to our advantage However, the fact remains that in many parts of the country, this process breaks down under excessive pollution " The statement was based on a report entitled Statistical Summary of Sewage Works in the United States,' prepared by John R Thoman, sanitary engineer at the Environmental Health Center (Cincinnati) of the Public Health Service The report summarizes basic data on the country's sewage works which first appeared in the 1945 Inventory of Water and Sewage Facilities, which covered all communities of over 100 population in the United States "There has been no significant change in the general situation since the survey," Mr Hollis said

CERTIFIED BY SPECIALTY BOARD

In addition to those listed in The Journal April 1, page 997, the following commissioned medical officers of the Public Health Service have been certified by American specialty boards

PREVENTIVE MEDICINE AND PUBLIC HEALTH

Leroy R Allen, senior surgeon
Otis L. Anderson, assistant surgeon general
Robert J Anderson medical director
Charles A Armstrong, medical director
Richard C Arnold medical director
Will H Aufranc, medical director
Theodore J Bauer medical director
Joseph A Bell medical director
Welby W Bigelow senior surgeon
C F Blankenship medical director
Leroy E Burney medical director
Travis P Burroughs senior surgeon
Legrand B Byington medical director
Albert L Chapman, medical director
Erval R Coffey, assistant surgeon general
Frank J Condon senior surgeon
Hugh B Cottrell, senior surgeon
James A Crabtree medical director
Dorland J Davis, surgeon
Joseph O Dean, assistant surgeon general
W Palmer Dearing deputy surgeon general
James A Doull medical director
W C Dreesen medical director
Erwin C Drescher, senior surgeon
John E Dunn, senior surgeon
Gilbert L Dunnahoo medical director
Rolla E Dyer assistant surgeon general
Clifford R Eskey medical director
Malcolm J Ford, senior surgeon
Lynne A Fullerton, medical director
Harald M Graning senior surgeon
Victor H Haas medical director
Karl Habel, medical director
Mason V Hargett medical director
John R Heller Jr, medical director
Elmer L Hill surgeon
Herman F Hilleboe senior surgeon
Ralph B Hogan medical director
Henry A Holle medical director
Noka B Hon, medical director
Lewis H Hoyle, senior surgeon
John B Hozier medical director
F A Johansen medical director
Paul V Joliet, senior surgeon

DERMATOLOGY AND SYPHILOLOGY

Edgar B Johnwick senior surgeon

NEUROLOGY AND PSYCHIATRY

Thomas H Ainsworth, senior surgeon
Louis A Gottschalk, senior assistant surgeon

PATHOLOGY

George Adams, surgeon
George Brecher, surgeon
Harry Eagle medical director
Benjamin Highman, senior surgeon

RADIOLOGY

David M Gould surgeon

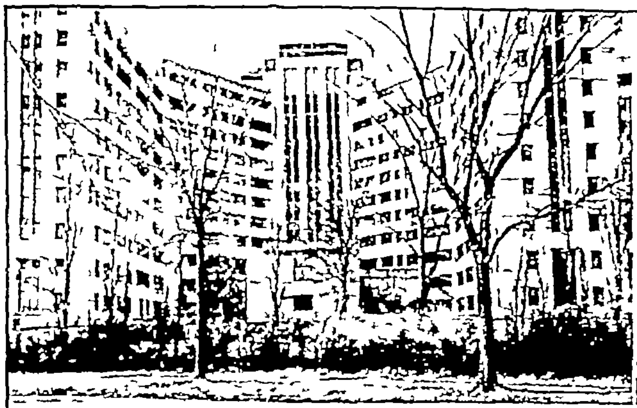
PERSONAL

Dr Lloyd S Felton retired from the Public Health Service December 1 after some 14 years of service devoted to research He is a graduate of Wooster College and of Johns Hopkins University Medical School

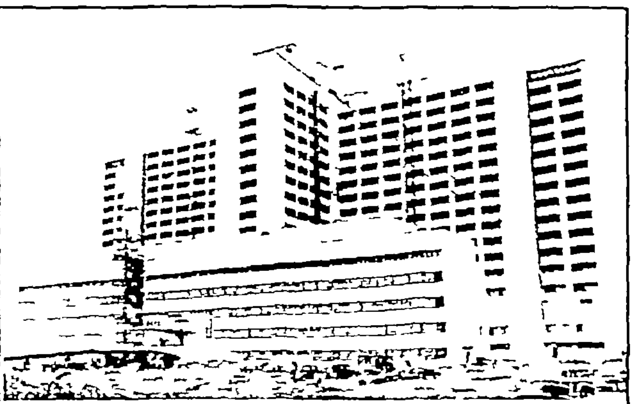
VETERANS ADMINISTRATION

NEW VETERANS HOSPITALS

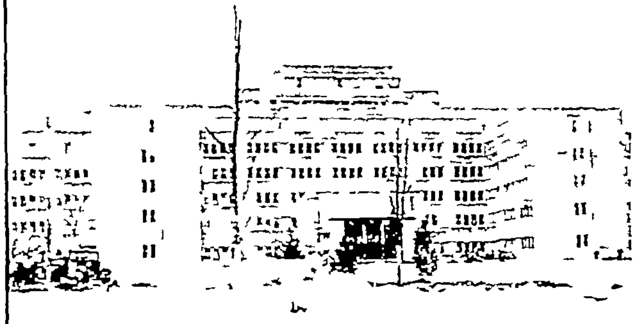
THE FOLLOWING NEW VETERANS ADMINISTRATION HOSPITALS WERE COMPLETED APPROXIMATELY DURING THE CALENDAR YEAR 1949



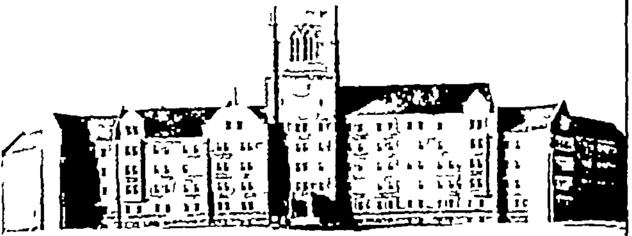
BUFFALO, NEW YORK (1005 BEDS)



FORT HAMILTON BROOKLYN N Y (1000 BEDS)

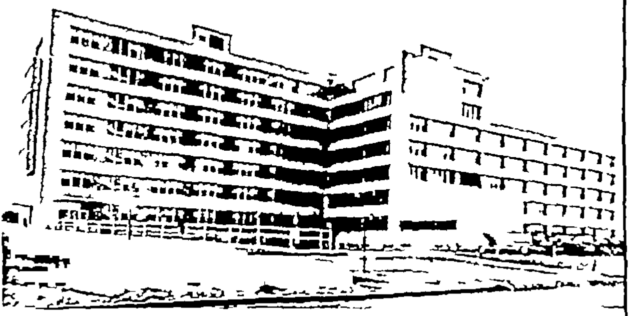


IRON MOUNTAIN MICHIGAN (250 BEDS)

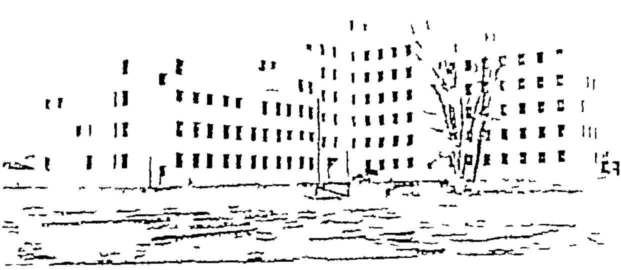


SIOUX FALLS SOUTH DAKOTA (283 BEDS)

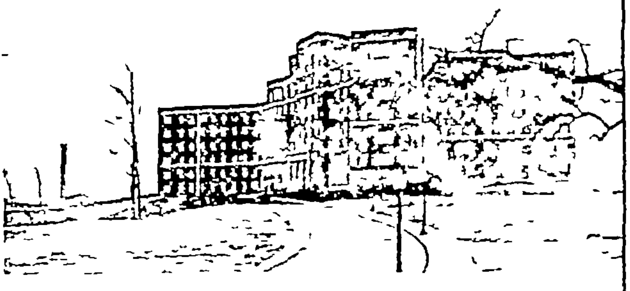
WILMINGTON DELAWARE (300 BEDS)



FRESNO CALIFORNIA (250 BEDS)



GRAND JUNCTION COLORADO (152 BEDS)



PROVIDENCE PHODE ISLAND (393 BEDS)

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest such as relate to society activities new hospitals education and public health Programs should be received at least two weeks before the date of meeting)

ALABAMA

Hospital Librarian Honored—The National Urban League has selected Mrs Sadie P Delaney, chief librarian of the Veterans Administration Hospital in Tuskegee, Ala, as "Woman of the Year—1949" in recognition of her work with blinded and mentally ill patients The National Urban League awards Certificates of Recognition annually to American Negro citizens Mrs Delaney has been at the VA hospital in Tuskegee for 27 years In 1934 she was selected to represent American libraries in Rome Late last year she received the American Legion Award from the Britton McKenzie Post No 150 for meritorious service to veterans She was selected as "Woman of the Year' by the Zeta Phi Beta Sorority and by the Iota Phi Lambda Sorority and in 1948 was honored in a special program by the Veterans Administration Hospital in Tuskegee for her 25 years of service to that institution Mrs Delaney is included in the book "Principal Women of America" She is councilor for the American Library Association Hospital Libraries Division and is a member of the International Hospital Libraries Guild Queens Garden, England

DISTRICT OF COLUMBIA

Dr Dowling Goes to Illinois—Dr Harry F Dowling of Washington D C has been named professor and head of the newly established department of preventive medicine at the University of Illinois College of Medicine effective June 1 Dr Dowling presently serves as clinical professor of medicine at George Washington University School of Medicine, Washington D C where he has been a member of the medical faculty since 1934 New courses in preventive medicine will be offered to third and fourth year medical students, and the social aspects of medicine will be emphasized The college of medicine also plans to establish a coordinated program of graduate education in hospitals throughout the state This program will include the rotation or interchanging of physicians in resident training and more extensive participation by the university medical faculty in the postgraduate instruction of hospital staff members Dr Dowling's field of research has been concerned primarily with pneumonia meningitis and the toxicity of sulfonamides and antibiotics He is the author of a book entitled "The Acute Bacterial Diseases Their Diagnosis and Treatment' and has written numerous scientific articles

FLORIDA

Hospital News—Facilities of the Dade County Cancer Institute will be employed by Jackson Memorial Hospital, Miami, for use as a cancer diagnostic and tumor clinic The institute will continue its cancer detection center in the building and the joint operations will provide a rounded program of service Dr Charles C Hillman director of Jackson Memorial Hospital, said the new tumor clinic will ease the load on the crowded outpatient clinic

Orange Memorial Hospital, Orlando, has received approval by the board of governors of a $300 000 wing of three stories It will add 75 beds, including facilities for psychiatric patients Federal approval of funds for another $775,000 wing now under construction has been received

ILLINOIS

Hospital News—The Good Samaritan Hospital in Mount Vernon, which will accommodate 117 patients, is about 45 per cent completed It is being built adjoining the site of the State Tuberculosis Hospital, which is also under construction in Mount Vernon

Directory of Psychiatric Facilities—The 1950 edition of the 'Directory of Psychiatric Facilities in Illinois" includes documented information on mental health resources throughout the state clinics, hospitals, sanitariums and schools for the mentally retarded This listing also describes the programs of psychiatric administrative agencies This is the seventh edition of state psychiatric facilities prepared by the Illinois Society for Mental Hygiene as a service to the community Copies may be procured at 50 cents each through the Illinois Society for Mental Hygiene offices, Room 300, 123 West Madison, Chicago

State Medical Meeting at Springfield—The Illinois State Medical Society will hold its annual meeting in Springfield May 23 25 with headquarters at the Abraham Lincoln Hotel, under the presidency of Dr Walter D Stevenson, Quincy For the first time in its history the society is dedicating its annual meeting to a physician, Dr Andy Hall of Mount Vernon, who was elected the outstanding General Practitioner of the United States at the interim session of the American Medical Association last December Out of state speakers at the general sessions include

Carl V Moore St Louis, The Oration in Medicine *Recent Advances in Hematology*
Charles O McCormick Indianapolis *Obstetric Helps*
Chester M Kurtz Madison *Hypertension Evaluation of Present Methods of Treatment*
Max M Strumia Bryn Mawr Pa *Recent Advances in the Management of Anemias*
Wendell A Johnson Iowa City, *Stuttering and Stammering in Children*
Edward B Neuhauser, Boston *Diagnosis of Cardiovascular Anomalies by Routine Roentgen Methods*
Alfred T Lieberman Baltimore *Types and Treatment of Deafness*
Robert M Zollinger Columbus Ohio *Indications for Surgery in Gall bladder Disease*

The Oration in Surgery, "Half Way Through," will be given by Dr Raymond W McNealy, associate professor of surgery, Northwestern University, Chicago A Poliomyelitis Symposium will be presented Wednesday afternoon by Drs Edward A Piszczek, Forest Park, George L Drennan, Jacksonville, Max Appel, Champaign and Robert L Bennett Jr, Warm Springs, Ga Section meetings on pediatrics, pathology, radiology, public health and hygiene and eye, ear, nose and throat will be held on Wednesday *The annual dinner will take place* Wednesday evening Raymond Moley, editorial writer for *Newsweek*, will speak The Woman's Auxiliary headquarters will be the Hotel Leland Special society groups will meet and alumni luncheons are scheduled Both scientific and technical exhibits will be shown

Chicago

Hospital Music Workshop — At the "Hospital Music Workshop" meeting April 26-28 in Chicago, the participating organizations were the Chicago Musical College, Chicago State Hospital, Veterans Administration Hospital, Downey, and the Illinois Children's Hospital School Workshop visitors toured the hospitals Psychiatrists, therapists, musicians and supervisors of recreation addressed the sessions

Oppenheim Memorial Lectureship — The Alpha Rho Chapter of the Phi Lambda Kappa Fraternity of the Chicago Medical School has established a Maurice Oppenheim Memorial Lectureship in honor of Dr Maurice Oppenheim, former dermatologist and head of the department of dermatology and syphilology at the school, who died last October The first annual lecture was held May 5 at 8 p m in the Kling Auditorium of Mount Sinai Hospital, when Dr Irvine H Page, director of research of the Cleveland Clinic Foundation, spoke on "Arterial Hypertension—Its Nature and Treatment"

KANSAS

Curran Lecture—The Curran Memorial Lecture will be given at the University of Kansas School of Medicine at 4 p m May 17 Dr Edwin B Dunphy, professor of ophthalmology at Harvard Medical School, Boston, will speak on "Ocular Therapeutics, Theoretical Considerations and Practical Applications" This lectureship was made possible by Dr Edward J Curran, Kansas City, Mo, professor of ophthalmology and for many years chairman of that department, who gave $12,000 to the school, the income from which is to be used for an annual lecture by a guest ophthalmologist

State Society Meeting in Wichita—The Kansas Medical Society will hold its annual meeting in Wichita May 15-18, under the presidency of Dr J Haddon Peck, St Francis Out of state speakers at the general sessions in the Arcadia Theater of the Forum include

Virgil S Counseller Rochester Minn *A Discussion of the Increasing Indications for Vaginal Hysterectomy and the Surgical Technic*
Cyril M MacBryde, St Louis, *Treatment of Diabetic Acidosis and Coma*
John Adriani New Orleans *Anesthetic Accidents*
Arthur R Woodburne Denver, *Lupus Erythematosus*
James F Bosma Salt Lake City *Criteria of Nutrition in Infancy*
Grayson L Carroll St Louis *Treatment of Urinary Infections—A Discussion of Antibiotics and Chemotherapeutic Agents*
Jules V Coleman Denver *Problems of Emotional Disturbance in Pediatric Patients*
Edward N Smith, Oklahoma City *Sexual Response in the Human Female*
Harold A Sofield Chicago, *Diagnosis and Treatment of Hip Joint Diseases of Children*
Samuel B Nadler New Orleans *Parenteral Fluid and Electrolyte Requirements*

The annual banquet will be held at the New Blue Moon Mr Leonard E Read, president, The Foundation for Economic

Education, Inc., New York, will speak on "Selling Liberty—A Public Relations Project for Every American" The Woman s Auxiliary will meet in conjunction with the society

MICHIGAN

Western Michigan Clinic Day—The Kent County Medical Society will present its second Western Michigan Clinic Day at the Civic Auditorium and Pantlind Hotel in Grand Rapids on May 18 The following program will be presented

Harvey Allen Chicago Immediate Treatment of Injuries of the Face and Extremities Panel Drs Wallace H Steffensen and Robert H Denham Grand Rapids
Richard Kovacs New York What Physical Therapy Has to Offer the Practicing Physician
Mark W Dick John C Montgomery and Jerome E Webber Grand Rapids The Management of Infant Feeding
William A. Altemeier Cincinnati Role of Antibiotics and Nutrition in the Treatment of Infection
Paul C. Hodges, Chicago What the Roentgenologist Has to Offer the General Practitioner
Richard H Freyburg New York Current Status of ACTH Cortisone and Related Steroids in Rheumatoid Arthritis

NEBRASKA

Cerebral Palsy Committee—The Cerebral Palsy Committee recently appointed by Dr Joseph D McCarthy, Omaha president of the Nebraska State Medical Association held an organizational meeting in March The committee will make a survey to determine the number of cerebral palsied persons in Nebraska, in order to determine what rehabilitation facilities are needed. The members are Drs Louis S Campbell chairman, John M Thomas and Frank A Barta all of Omaha, and Frederick C. Ferciot and Simon L Wolters of Lincoln

NEW JERSEY

State Medical Meeting—The annual meeting of the Medical Society of New Jersey will be held May 22-24 in Haddon Hall, Atlantic City under the presidency of Dr James F Norton, Jersey City Ten of the 18 sections will present programs this year Out of state speakers include

Isidor S Ravdin Philadelphia Surgical Lesions of the Stomach
Richard L Day New York, Brain and Liver Injury in Erythroblastosis Fetalis.
Karl M Houser Philadelphia Consideration of Allergic Conditions from the Standpoint of the Otolaryngologist
Lowell A. Erf Philadelphia Recent Advances in Hematology
Edward B Touhy Washington D C Anesthesia in Gynecologic Surgery and Operative Obstetrics
William Harris New York Radiologic Treatment of Oral Cancer
William D Stroud Philadelphia Heart Disease and the General Practitioner
Henry J Tumen Philadelphia Management of Massive Gastrointestinal Hemorrhage
Merrill C. Sosman Boston moderator X Ray Conference
Arthur P Stout New York Role of Pathology in Lesions of the Breast.

A dinner dance in honor of the president will be held Wednesday at 7 p m. The Woman s Auxiliary will meet in conjunction with the medical society Scientific and technical exhibits will be shown

NEW YORK

New State Hospital Buildings—Contracts have been awarded for the construction of a four story building at Middletown State Homeopathic Hospital in Middletown The new building will accommodate 640 patients in 16 wards

A 718 bed building is to be constructed at Utica State Hospital at a cost of nearly $5 000 000 The new six story building will consolidate and modernize all medical and surgical facilities In addition to operating rooms and two wards for medical and surgical patients there will be seven wards for 350 chronically ill patients The building is to be completed in 1953

Dr Bigelow Succeeds Dr MacCurdy—Dr Newton J T Bigelow, senior director of Marcy State Hospital, Marcy was appointed April 3 acting commissioner of mental hygiene succeeding Dr Frederick MacCurdy who resigned to accept an appointment to the New York State Citizens Committee of One Hundred for Children and Youth Dr Bigelow is a former deputy commissioner and acting assistant commissioner of the department He graduated from the University of Western Ontario Faculty of Medicine London in 1928 He has been associated with various state hospitals since his intern training

New York City

Hospital News—St Luke s Hospital observed the one hundredth anniversary of its founding at a service in the Cathedral of St John the Divine April 30 Speakers were the Right Reverend Charles K Gilbert Bishop of New York, and Dr Benjamin P Watson, president of the New York Academy of Medicine

Eighth Harvey Lecture.—Horace A Barker Ph D., professor of soil microbiology the University of California, will deliver the eighth Harvey Lecture of the current series at the New York Academy of Medicine May 18 on "Synthesis and Degradation of Fatty Acids by Anaerobic Bacteria

NORTH CAROLINA

Panel on Medical Education.—The Beta chapter of Alpha Omega Alpha at Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, presented a panel on medical education April 27 Alan Valentine, LL D president of the University of Rochester was chairman of the panel. Discussants were Daniel B Bryan, Ph D., dean of the school of liberal arts Wake Forest College, whose subject was Medical Education as Preparation for the Professions', Dr Currier McEwen dean of New York University College of Medicine, Undergraduate Medical Education , Dr Robert C Berson assistant dean University of Illinois College of Medicine, Chicago, 'Medical Education for the Specialties' and Irving Carlyle, attorney and former president of the board of trustees of Wake Forest College, Medical Education to Meet the Needs of the Public.'

OKLAHOMA

Sanitarium Given to Research Foundation.—Coyne Campbell Sanitarium in Oklahoma City has been given to the Oklahoma Medical Research Foundation by Dr Coyne Campbell who founded the hospital two years ago The gift includes nearly 8 acres of land, a hospital building three cottages a dining hall kitchen, treatment rooms and a storage building The sanitarium will accommodate 90 patients The sanitarium is designed for chronic and convalescent psychiatric patients and alcoholics

Oklahoma Acts on A.M A Dues Procedure—At a special meeting of the House of Delegates of the Oklahoma State Medical Association it was voted to recommend to the regular session of Oklahoma s House of Delegates which meets June 4, that dues in the American Medical Association would be a requirement for membership in the state association and its component societies Since such action necessitates changing the by-laws of the state society, the matter has to be taken up at a regular session of the state's House of Delegates Oklahoma is the first state to take such action

PENNSYLVANIA

Conference on the Exceptional Child—'The Exceptional Child in Infancy and Early Childhood will be the subject of the annual Spring Conference on Education and the Exceptional Child held under the auspices of the Child Research Clinic of the Woods Schools at Langhorne May 12 Out of state speakers include

Margaret F Fries New York Early Factors in Establishing Object Relationship (Films of the Lying In Period)
Randolph K. Byers Boston Early Recognition of Developmental Handicaps
Ethel B Waring Ph.D Ithaca N Y Principles for Guiding Exceptional Children
Margaret S Mahler New York Experience of Play and Learning
Harold Westlake Ph.D Evanston Ill. Development of Oral Language.

Philadelphia

Dr Moon Goes to Florida—Dr Virgil H Moon emeritus professor of pathology Jefferson Medical College of Philadelphia has been appointed professor of pathology at the University of Miami Fla The university has expanded its activities by organizing a Medical Research Unit to provide for investigations in various fields of medical science

Fraternity Lecture—Dr Hans Selye director of the Institute of Experimental Medicine and Surgery of the University of Toronto Canada presented the annual lecture of the Phi Delta Epsilon Fraternity on The General Adaptation Syndrome and the Hypertensive Diseases at Hahnemann Medical College May 3 at 8 30 p m

SOUTH CAROLINA

State Medical Meeting—The South Carolina Medical Association will hold its one hundred and second annual session at Myrtle Beach May 16-18 Dr Roderick Macdonald Rock Hill is president Guest speakers will include Dr Austin Smith Chicago Editor of *The Journal* Dr Russell L Cecil associate professor of clinical medicine at Cornell University New York and Dr Barnes Woodhall professor of neurosurgery at Duke University School of Medicine Durham N C The address at the annual banquet will be given by Dr Guy R Fisher, Staunton, Va, past president of the Medical Society of Virginia At the banquet Dr Wilbur R Tuten, Fairfax, will be installed as president

Personal—Dr W Cyril O'Driscoll, associate professor of anatomy at the Medical College of the State of South Carolina, Charleston, has been promoted to professor of anatomy With the exception of service in the Medical Corps during World War I he has been with the medical college ever since his graduation there in 1905

UTAH

Dr Bowers Appointed Dean—Dr John Z Bowers, since 1947 deputy director of the Division of Biology and Medicine of the Atomic Energy Commission, Washington, D C, has been appointed dean of the University of Utah College of Medicine Salt Lake City He will fill the position formerly held by Dr Richard H Young, who left to assume the deanship at Northwestern University School of Medicine in Chicago Dr Hyrum L Marshall who has been acting dean since Dr Young left in August 1949, will continue in that capacity until November 1, when Dr Bowers will assume active duty at the college of medicine He is a graduate of the University of Maryland, Baltimore (1938), where he served as instructor in medicine until he joined the navy in 1941

WASHINGTON

Tacoma Surgical Meeting—The Tacoma Surgical Club will hold its annual meeting at the Tacoma General Hospital Nurses' Home on May 13 Dr Frank H Lahey, Boston, will speak on "Radical Neck Dissection for Carcinoma", Dr James R Johnson, Los Angeles, on "Subtotal Thyroidectomy", Dr Warren H Cole, Chicago, "Anomalies of Bile Ducts and Vessels" and "Stricture of Common Duct," and Loyal Davis, Chicago, "Injuries of Peripheral Nerves" Anatomic dissections and demonstrations will also be presented

WEST VIRGINIA

Rural Health Conference—A statewide Rural Health Conference, sponsored by the West Virginia State Medical Association with the full support of the state department of health and the Agricultural Extension Service of West Virginia University, will be held May 18, at the state 4-H Camp at Jackson's Mill The program will get under way at 10 a m, with Dr Frank J Holroyd of Princeton, chairman of the state public relations committee presiding Gertrude Humphreys, Agricultural Extension Service, will report on a survey of available medical services in a typical rural county in this state Dr Henry B Mulholland of Charlottesville, professor of practice of medicine and assistant dean of the University of Virginia Medical School, and Dr George F Bond, of Bat Cave, N C, head of the Valley Clinic and Hospital, will appear on the program

GENERAL

Invitation to Gynecology Congress—The French Society of Gynecology is extending an invitation to members of the section on obstetrics and gynecology of the American Medical Association to attend its congress, which will be held in La Baule May 30 to June 2

Society Elections—Officers of the Mid-Atlantic Section of the American Urological Association for 1950-1951 include Drs Albert A Creecy, Newport News, Va, president, and Horatio N Dorman, Washington, D C, secretary-treasurer ——American Academy of Orthopaedic Surgeons, Inc, has announced that its officers for 1950 include Drs Guy A Caldwell, New Orleans, president, Joseph S Barr, Boston, president-elect, H Relton McCarroll, St Louis, treasurer, and Harold B Boyd, Memphis, Tenn, secretary

Radium Society Meeting—The American Radium Society will hold its annual meeting at the Roosevelt Hotel in New York May 25-26 under the presidency of Dr Hugh F Hare, Boston A Symposium on Cancer of the Cervix will be presented with the following doctors participating Drs Gerald A Galvin, Baltimore, Gray H Twombley, New York, Joe V Meigs, Boston, Alexander Brunschwig, New York, James F Nolan, Los Angeles, and Herbert E Schmitz, Chicago Eight other papers will be presented The Janeway Lecture on "Evolution of Radiology Physics as Applied to Isotopes" will be given by Dr Otto Glasser, Cleveland

Hormone Conference—The Laurentian Hormone Conference of the American Association for the Advancement of Science will hold its 1950 meeting at the Forest Hills Hotel, Franconia, N H, September 10 to 15 Attendance is limited by the accommodations available at the hotel, but the Committee on Arrangements invites applications for attendance from interested investigators and specialists in the hormone field Application blanks for attendance at the conference may be obtained from the Chairman, 222 Maple Avenue, Shrewsbury, Massachusetts Applications to be considered by the committee must be received by May 20

EENT Meeting—The American Laryngological, Rhinological and Otological Society will hold its annual meeting May 25-27 at the Hotel Mark Hopkins in San Francisco, under the presidency of Dr Robert C Martin, San Francisco Those speaking by invitation include

William G Meals Los Angeles, Treatment of Surgical Shock
Bertram V Low Beer, San Francisco, Radiation Therapy of Carcinoma of the Larynx
Howard C Naffziger, John B De C M Saunders and Earl R Miller, San Francisco Physiology of Swallowing in Relation to Clinical Disorders

The guest of honor will be Dr Harris P Mosher of Marblehead, Mass

Western Urological Association—The Western Section of the American Urological Association will hold its annual meeting May 8-11 at the Ahwahnee Hotel in Yosemite Valley, Calif The scientific program includes a motion picture program on Tuesday and a symposium on Ureterointestinal Anastomosis on Wednesday The Robert V Day Lecture will be delivered by Dr Thomas J Kirwin, professor and director of urology at New York Medical College, on "Anuria Its Treatment by Various Methods, including the Artificial Kidney" A lecture by Col James C Kimbrough of the Army Medical Corps, Washington, D C, will be given on "Malignant Disease of the Testicle"

Dr Holmblad Receives Knudsen Award—Dr Edward Charles Holmblad, Chicago, received the 1950 Knudsen Award April 29 at the banquet of the American Association of Industrial Physicians and Surgeons in the Hotel Sherman, Chicago Dr Holmblad is treasurer and managing director of the American Association of Industrial Physicians and Surgeons He graduated from Rush Medical College in 1919, interned for two years at Cook County Hospital in Chicago and then served as a petty officer in the U S Naval Reserve at the Great Lakes Naval Training Station during World War I He practiced medicine in Chicago, served as chief regional surgeon for the Railway Express Agency and also served as a physician for several railroads, industries and insurance companies He is a specialist certified by the National Board of Medical Examiners Dr Holmblad has been active in the American Association of Industrial Physicians and Surgeons since 1924, he served as the association's president in 1935

FOREIGN

New Hospital in Pakistan—A modern 350 bed Holy Family Hospital in Rawalpindi, Pakistan, has been opened by the Medical Mission Sisters of Philadelphia Begun four years ago, the construction of the hospital was carried on in spite of civil war Persons of all creeds and classes will receive medical care Sr M Alma Lalinsky, a graduate of Woman's Medical College of Pennsylvania, Philadelphia, and doctor in charge at the hospital, presided at the opening ceremony March 25 Mohammedan Maj Gen S M A Faruki, director general, Medical Services of the Pakistan Army, was guest speaker Guests of honor included the commander in chief of the Pakistan Army, Gen Sir Douglas Gracey, Lady Gracey and the commissioner of Rawalpindi District, Hadi Hussein

Marriages

David Jeremiah Greenberg, Richmond, Va, to Miss Marilyn Ruth Starkman of Wakefield, Mass, in Boston, March 26

Norman Malcolm Harris, Portland, Ore, to Dr Marjorie Piehl of Seymour, Wis, in San Francisco, March 3

Frank Marion Philippi Jr, Brewton, Ala, to Miss Virginia Moore Kerlin of Marianna, Fla, March 18

Thomas Alpheus Morris Jr, Framingham, Mass, to Dr Ada Doughty Bedinger at Boston, April 15

Thomas DeVann Johnson, Emory University, Ga, to Miss Zollie Anne Saxon in Fort Valley, recently

Francis Robert Payne Jr, Newport, Va, to Miss Lillian Elizabeth Hoge of Pembroke, March 25

Leon Oettinger Jr, Rosemead, Calif, to Miss Logan Louise Geary at San Marino, Calif, May 6

John Peter Igini, Chicago, to Miss Jane Maren Stromsen of Oak Park, Ill, January 14

Deaths

Willard Bartlett ⊕ Vice President of the American Medical Association, 1922-1923, died at his home in St Louis, April 4, aged 81, of cerebral hemorrhage Dr Bartlett was born in Virden, Ill, in 1868 After graduation from Marion-Sims College of Medicine in 1895, he spent three years in postgraduate studies at the universities of Berlin Strassburg and Rostock. He was given a teaching appointment in pathology at the University of Berlin In 1898 he returned to St. Louis and entered the practice of general surgery, in which he engaged for the remainder of his life He was from 1898 to 1901 professor of pathology at the Marion-Sims College of Medicine In 1901 he became associated with the department of surgery of the Washington University School of Medicine and was advanced in rank until 1942 when he retired from teaching as emeritus professor of clinical surgery During World War I Dr Bartlett joined the Marine Hospital Service as a surgeon and during World War II as a consultant He was a member of the Society of Clinical Surgery, Western Surgical Association, of which he was vice president in 1922, and the Southern Surgical Association, which he served as vice president in 1916 and as president in 1920 He was a founding member of the American College of Surgeons and the American Board of Surgery From 1907 to 1908 and 1920 to 1921 he was secretary of the Section on Surgery and Anatomy of the American Medical Association From 1925 to 1929 he was a member of the state board of health of Missouri At various times he was on the staffs of St. Louis City, St Anthony's, Jewish Missouri Baptist, Evangelical Deaconess and DePaul hospitals In 1926 Dr Bartlett received the honorary degree of doctor of science from the Illinois College of Jacksonville, Ill, and was made an honorary member of Phi Beta Kappa He was the author of "After Treatment of Surgical Patients' in 1922 and "Surgical Treatment of Goiter" in 1926 In 1949 he completed the publication of his memoirs, which he circulated privately to his friends, under the title of "Bartlett's Recollections"

Charles Richard Drew, Washington, D C. born in Washington, June 3, 1904 McGill University Faculty of Medicine, Montreal, Canada, 1933, resident in medicine at Montreal General Hospital during 1934 and part of 1935, when he joined Howard University College of Medicine as an instructor in pathology, serving as assistant in surgery, 1936-1937 and instructor in surgery, 1937-1938, in 1938 was awarded a Rockefeller Fellowship in surgery at Columbia University in New York, where he received his doctor of science degree in 1940, and during this time was a resident in surgery at Presbyterian Hospital, returned to Howard University in 1940 as assistant professor of surgery, and in 1941 became professor and head of the department of surgery, certified by the National Board of Medical Examiners, specialist certified by the American Board of Surgery, served as chairman of the surgical section of the National Medical Association member of the board of trustees of the District of Columbia Branch of the National Poliomyelitis Foundation, member of the board of trustees of the National Society for Crippled Children and member of the board of directors of the District of Columbia Chapter of American Cancer Society, fellow of the International College of Surgeons, awarded the 1943 Spingarn Medal of the National Association for the Advancement of Colored People, was on the staff of Freedmen's Hospital as a resident in surgery and assistant surgeon from 1936 to 1938, returning in 1940 as surgeon and was advanced to chief of staff from 1944 to 1946, when he was made medical director, in 1948 became a member of the dean's committee of the Veterans Administration Hospital in Tuskegee, Ala , received honorary doctor of science degrees from the Virginia State College, Petersburg, Va in 1945 and from Amherst College in Amherst Mass, in 1947, died near Burlington, N C, April 1, aged 45, in an automobile accident

Walter Goodloe Stuck ⊕ San Antonio Texas born at Jonesboro, Ark., Jan 19, 1905, Washington University School of Medicine, St Louis, 1929, received the degree of M S in orthopedic surgery from the University of Minnesota in 1933, intern at the University of Michigan Hospital at Ann Arbor from July 1, 1929 to July 1 1930 at which time he entered the Mayo Foundation Rochester, Minn as a fellow in orthopedic surgery clinical professor of orthopedic surgery Graduate School, Baylor University Houston specialist certified by the American Board of Orthopaedic Surgery, member of the American Orthopaedic Association, Southern Surgical Association, American Academy of Orthopaedic Surgeons American Association for the History of Medicine and the American Association for the Surgery of Trauma, past president of the Southwestern Surgical Congress, served as secretary of the Texas Surgical Society, fellow of the American College of Surgeons, civilian consultant in orthopedic surgery Brooke Army Medical Center, affiliated with Nix Memorial, Robert B Green Memorial and Santa Rosa hospitals, joint author of "Internal Fixation of Fractures", an associate editor of *Southern Surgeon*, died March 21, aged 45, of acute leukemia

James Kerr Anderson ⊕ Minneapolis, born in East Liverpool Ohio, July 11, 1891, Johns Hopkins University School of Medicine, Baltimore, 1917, clinical associate professor of surgery at the University of Minnesota Medical School, past president of the Hennepin County Medical Society, specialist certified by the American Board of Surgery, member of the American Proctologic Society, fellow of the American College of Surgeons, served during World War I, formerly medical director and superintendent of the Deerwood Sanatorium in Deerwood and superintendent of Sunnyrest Sanatorium in Crookston, joint author of "Injection Treatment of Varicose Veins and Hemorrhoids", on the staffs of Northwestern St Mary's and Minneapolis General hospitals and Abbott Hospital, where he died March 28, aged 58, of acute coronary thrombosis

John Henry Rindlaub, Fargo, N D , born in 1865 Columbian University Medical Department Washington, D C, 1893, Howard University College of Medicine, Washington, 1894, specialist certified by the American Board of Otolaryngology, member of the American Academy of Ophthalmology and Otolaryngology, National Society for the Prevention of Blindness and Pacific Coast Oto-Ophthalmological Society, fellow of the American College of Surgeons, past president of the North Dakota Academy of Ophthalmology and Otolaryngology and the North Dakota State Medical Association while practicing in Pasadena, Calif, served on the staff of the Collis P and Howard Huntington Memorial Hospital, served on the staff of St John's Hospital and St Luke's Hospital, where he died March 12, aged 84, of uremia and chronic glomerulonephritis

Eugene Ellis Alston, Grand Rapids, Mich , University of Michigan Medical School, Ann Arbor, 1924, served during World War I, died in the Sunshine Sanatorium February 24 aged 51, of pulmonary tuberculosis

Edith V Bartlett, Janesville, Wis , the Hahnemann Medical College and Hospital, Chicago, 1899 died recently, aged 76 of abdominal cancer

Charles Thomas Bullock, Mullins S C , Medical College of the State of South Carolina, Charleston, 1926, member of the American Medical Association fellow of the American College of Surgeons, formerly affiliated with the South Carolina State Hospital in Columbia, affiliated with the Mullins Hospital, where he died February 24, aged 53

Paul Mather Clifford, Green Bay, Wis , Marquette University School of Medicine, Milwaukee, 1916, member of the American Medical Association, died in St. Vincent's Hospital February 17, aged 58, of cerebral hemorrhage, hypertension and diabetes mellitus

Nathaniel Frank Flater, Latham, N Y , University of Alberta Faculty of Medicine Edmonton, Alta, Canada 1927, member of the American Medical Association served in the European theater of operations with an army antiaircraft unit during World War II, died suddenly February 26 aged 48 of coronary occlusion

Walter James Grenolds ⊕ Westerly, R. I , University of Buffalo School of Medicine, 1910, fellow of the American College of Surgeons, affiliated with Westerly Hospital, died in Hollywood Calif February 18, aged 66, of coronary occlusion and arteriosclerosis

Frederick William Gross, Cincinnati University of Cincinnati College of Medicine, 1935, member of the American Medical Association, died in Jewish Hospital March 21, aged 40

Edward Earle Haskell ⊕ Greeley, Colo University of Colorado School of Medicine Denver 1913 also a graduate in pharmacy, died February 16 aged 70

D Dick Howser ⊕ Lafayette Tenn University of Tennessee Medical Department, Nashville 1907, died March 9 aged 72, of coronary occlusion and cholecystitis

Herbert Arthur Huntington ⊕ Los Angeles Stanford University School of Medicine San Francisco 1926 fellow of the American College of Physicians served overseas during World War I, affiliated with the Hospital of the Good Samaritan died March 18 aged 56 of heart disease

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⊕ Indicates Fellow of the American Medical Association

Park B Jenkins, Waubay, S D, College of Physicians and Surgeons of Chicago, 1896, served as superintendent and executive officer of the state board of health, died in Tekakwitha Hospital, Sisseton, February 5, aged 78

Joseph Elton Johnston, Pittsburgh, Cleveland Medical College, 1896, died March 12, aged 84, of cerebral hemorrhage and cerebral thrombosis

Hunter Carr Jones ⊕ Bunkie, La, University of Nashville (Tenn) Medical Department, 1909, formerly parish coroner, died March 12, aged 65

Caroline Smith Carr Juergens, Topeka, Kan, National University of Arts and Sciences Medical Department, St Louis, 1913, formerly member of the state board of health, died in St Anthony's Hospital, Hays, March 2, aged 67

Simon Rufus Karpeles ⊕ Washington, D C, National University Medical Department, Washington, D C, 1902, served during World War I, for many years on the staff of the Garfield Memorial Hospital, where he died April 3, aged 70, of arteriosclerotic heart disease

Frank J V Krebs ⊕ Clayton Mo, Marion-Sims College of Medicine, St Louis, 1897 an Associate Fellow of the American Medical Association, past president of the St Louis Medical Society, died March 6, aged 74

Alfred Lewin, Piqua, Ohio, Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin, Germany, 1913, died in Columbus March 24 aged 63, of brain tumor

Joseph Bostick Liston, Raymond, Ill, University of Louisville (Ky) Medical Department, 1907, member of the American Medical Association, killed instantly March 2, aged 69, when his automobile was struck by a train

Floyd D Lohr, New York, Medico-Chirurgical College of Philadelphia, 1911, member of the American Medical Association, served during World War I, affiliated with Wickersham Hospital, formerly on the staff of the New York Postgraduate Medical School and Hospital, died March 16, aged 62

Arthur F Maisch, Los Angeles, Missouri Medical College, St Louis 1896, affiliated with Hospital of the Good Samaritan Children's and Los Angeles County hospitals, at one time superintendent of public health for Gila County, Ariz, died March 3, aged 76, of cerebral thrombosis

Thomas Rhea Maxwell, New Berlin, Ill, University of Louisville (Ky) School of Medicine, 1916, served in France during World War I, died March 13, aged 64

John Patrick Monroe, Sanford, N C, College of Physicians and Surgeons, Baltimore, 1901, fellow of the American College of Surgeons, died March 17, aged 79, of angina pectoris

Chester Davis Moses ⊕ Buffalo, Long Island College Hospital, Brooklyn, 1902, specialist certified by the American Board of Radiology, member of the Radiological Society of North America and the American College of Radiology, affiliated with Deaconess Hospital died March 17, aged 75, of coronary thrombosis

Robert Shannon Peck ⊕ Cannelton, W Va, College of Physicians and Surgeons, Baltimore, 1915, died in Montgomery March 24, aged 61, of coronary insufficiency following amputation of the left leg due to diabetic gangrene

George Elliott Peters ⊕ Columbus, Ohio, Ohio State University College of Medicine, Columbus, 1927, died in Mercy Hospital in March, aged 55

Henry Prigge, Los Angeles, University of Southern California College of Medicine, Los Angeles, 1907, affiliated with the Hospital of the Good Samaritan, died March 5, aged 79, of heart disease

Earl Samuel Reimer, Allentown, Pa, Hahnemann Medical College and Hospital of Philadelphia, 1948, served during World War II, interned at Allentown Hospital, died January 22, aged 27, of injuries received in an automobile accident

Earl Owen Reynolds ⊕ Long Beach, Calif, University of Louisville (Ky) Medical Department, 1914, died in Seaside Hospital March 14, aged 59, of uremia

Charles Carr Richards, Roanoke, Va, University College of Medicine, Richmond, 1906, member of the American Medical Association, served during World War I, died in Shenandoah Hospital March 12, aged 70

Conrad Richter, Newport Beach, Calif, Rush Medical College, Chicago, 1887, member of the American Medical Association, at one time mayor of Newport Beach, died in Los Alamitos March 8, aged 88

Joseph Harrison Robinson, Hamlet, N C, Meharry Medical College, Nashville, Tenn, 1917, died March 1, aged 59

Colin Kenneth Ross, Newman, Ill, Bennett College of Eclectic Medicine and Surgery, Chicago, 1911, member of the American Medical Association, past president of the Douglas County Medical Society, died in Jarman Hospital, Tuscola, March 16, aged 64, of injuries received in an automobile accident

Charles Sylvester Sentner ⊕ Benton, Pa, Jefferson Medical College of Philadelphia, 1929, served during World War II affiliated with the Bloomsburg (Pa) Hospital, died in the Allentown (Pa) Hospital March 3, aged 44, of coronary occlusion

Linnaeus Cuthbert Shecut, Orangeburg, S C, University of Georgia Medical Department, Augusta, 1901, member of the American Medical Association, served during World War I, for a time served on the city school board, for many years physician for State A and M College, affiliated with Tri-County Hospital, where he died March 4, aged 74, of cerebral thrombosis and hypostatic pneumonia

William Otto Solomon ⊕ Oakland, Calif, University of California Medical School, San Francisco, 1919, fellow of the American College of Surgeons, died March 11, aged 62

Frank Reid Spell, Liberal, Mo, National University of Arts and Sciences Medical Department, St Louis, 1916, member of the American Medical Association, on the staff of Memorial Hospital in Lamar, died March 3, aged 62, of coronary occlusion

Albert John Stokes ⊕ Chicago, Bennett College of Eclectic Medicine and Surgery, Chicago, 1914, fellow of the American College of Surgeons, served with the selective service system during World War II, affiliated with West Suburban Hospital, Oak Park, Ill, and Garfield Park Community Hospital, where he died March 14, aged 63, of cerebral hemorrhage

Julius Richard Sturre ⊕ Minneapolis, University of Minnesota Medical School, Minneapolis, 1918, fellow of the International College of Surgeons, died March 28, aged 55, of coronary disease

David Alexander Thomson ⊕ St Louis, St Louis College of Physicians and Surgeons, 1903, served during World War I, on the staff of Missouri Baptist Hospital, died in Mount St. Rose Sanatorium March 16, aged 75, of tuberculosis

Felix R Tucker, Nacogdoches, Texas, Medical Department of Tulane University of Louisiana, New Orleans, 1892, died February 19, aged 78

John Sebastian Weaver, Kansas City, Mo, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1897, member of the American Medical Association, affiliated with Kansas City General Hospital No 1 and St Luke's Hospital, died March 13, aged 76, of arteriosclerotic heart disease

John McCloud Wenger, Terre Hill, Pa, University of Pennsylvania School of Medicine, Philadelphia, 1910, member of the American Medical Association, president of borough of Terre Hill school board for many years and deputy coroner of Terre Hill area, past president of the Terre Hill Bank, died in St Joseph's Hospital, Lancaster, February 25, aged 66, of coronary thrombosis and diabetes mellitus

William Champness Williams, St Petersburg, Fla, Beaumont Hospital Medical College, St Louis, 1897, also a graduate in pharmacy, veteran of the Spanish-American War and World War I, died in the Veterans Administration Hospital, Bay Pines, Fla, February 26, aged 84

Percy H Willson, Chassell, Mich, Detroit College of Medicine, 1900, died March 6, aged 73, of coronary thrombosis

Frank Minium Wilson ⊕ Cumberland, Md, University of Maryland School of Medicine, Baltimore, 1914, fellow of the International College of Surgeons and the American College of Surgeons, served overseas during World War I, on the staff of Memorial Hospital, where he died February 23, aged 59, of bronchogenic carcinoma

Albert Newton Winchester, Joplin, Mo, Vanderbilt University School of Medicine, Nashville, Tenn, 1891, served as county coroner, died in Freeman Hospital March 14, aged 83

CORRECTION

Dr Luvia Margaret Willard Is Not Dead—The obituary notice of Dr Luvia Margaret Willard of Jamaica, N Y, published in THE JOURNAL April 29, page 1377, and listed in the index on page 1418, was in error Dr Willard writes that she is very much alive

Foreign Letters

ITALY

(From a Regular Correspondent)

Florence, March 10 1950

Congress of Pediatrics

The twentieth Annual Congress of the Italian Society of Pediatrics was held at Taormina. The first subject reported was the dysenteric syndrome in childhood. The main speaker was Professor Barberi, Professors Bruni, Aversa and Ingiulla participated in the discussion. Professor Barberi reviewed research on the identification of etiologic agents, discussing particularly Bacillus dysenteriae and Endamoeba hystolytica. The epidemiology of the various forms was discussed by Professor Bruni, who regretted that bacteriologic verification is not yet a routine practice in Italy in all enteric and enterocolitic diseases.

Professor Aversa discussed the clinical and anatomicopathologic aspects of the various syndromes, particularly bacillary dysentery. Professor Aversa stated that complications occur less often in infants than in adults, he emphasized the disagreement existing among different authors with respect to the hematologic picture of bacillary dysentery, in which some investigators have encountered leukocytosis and others leukopenia. There are three typical stages of the lesions in the intestines: hypertrophy and follicular hyperplasia, necrosis of the lymphatic nodules and the ulcerative stage.

Professor Indulla discussed methods of therapy for the various dysenteric forms in childhood. Sulfonamide therapy, plasmotherapy, administration of amino acids and adequate dietary regimen may be employed for bacillary dysentery. In his opinion, sulfonamide therapy rates highest. The speaker criticized the different methods of treatment of amebic dysentery and recommended a course of emetine therapy followed by arsenical compounds and ortho-oxyquinoline derivatives for a long period.

The second subject reported was rheumatic disease in childhood. Professor Bocchini was the speaker, Drs Cavallotti, Martoni, Orlandi, Cislati and Toscano took part in the discussion. Professor Bocchini emphasized that the polymorphism of rheumatic disease has given origin to numerous definitions and that the subject is of great interest to pediatricians. According to the speaker the problem is still unsolved.

Dr Cavallotti discussed rheumatic disease as a social disease and the adverse effect on the national economy.

In his study of the rheumatic disease of infancy Dr Martoni said the important factors are age, sex, race, familial incidence and hereditary predisposition, climate, seasonal variations and environment. One fact seems clear: rheumatic disease originates in a particularly predisposed organism (rheumatic diastasis).

Not a single specific pathogenic agent has been demonstrated so far. Among the suspected responsible infectious agents the speaker considers Streptococcus hemolyticus A, its participation in the rheumatic process may be assumed because of the infection of the upper respiratory tract which precedes the rheumatic manifestations, because of the antistreptococcic defense mechanisms presented by the rheumatic patients and because of the favorable results of prophylaxis with sulfonamide compounds and penicillin.

Also of importance in this field are the investigations tending to include the rheumatic disease in the group of etiologic binomial diseases (virus and bacteria). According to this concept streptococci would prepare the route for the virus creating conditions favorable to it.

Dr Orlandi dealt with the pathology of rheumatic disease, concluding that the changes observed have three phases: (*a*) acute, characterized by the inflammation of the serosa and fibrinoid degeneration of the vascular connective tissue, (*b*) cellular proliferation, predominantly hystiocytic resulting in rheumatic granuloma and (*c*) a productive cicatricial phase.

Dr Cislaghi reported on symptoms, diagnosis and prognosis of rheumatic disease in infancy. The disease has four stages. First, the organism harbors the causative agent of rheumatism, this phase is characterized by inflammatory localization in the respiratory tract. The second phase or latent period, occurs between the start of rheumatic disease and the phase of manifested activity. It is of one to four weeks duration. The third phase corresponds with the acute rheumatic attack. Multiform clinical manifestations of varying duration may be present. The last phase is characterized by the apparent inactivity of the rheumatic process.

Dr Toscano, who spoke on prophylaxis, stressed that the uncertainty as to etiology has its repercussions in prophylaxis and therapy. Early salicylic therapy with prolonged rest is basic in the prevention of cardiopathies. According to the speaker, sodium methyl salicylate is still the drug of choice for the cure of rheumatic diseases, provided it is administered early and in sufficient doses to maintain a salicylic concentration in the blood between 35 and 40 mg per hundred cubic centimeters.

NETHERLANDS

(From a Regular Correspondent)

Feb 27, 1950

The High Birth Rate

The recently organized Institute for Social Research in the Netherlands is paying special attention to the demographic development of the Netherlands, the population of which has increased more rapidly than the population of any other country in Europe. At the first general census, in 1829 it was more than 2.5 million. It was more than 5 million in the year 1900. By the end of 1949 the Netherlands had 10,000,000 inhabitants. The increase of the population is mainly due to the high birth rate. Although this rate declined considerably, especially after 1900, it still remained at a high level, at the same time there was a favorable reduction in mortality. Even after 1940, when the population, in spite of the war period with a higher death rate, 210,000 direct war casualties and an emigration surplus, increased within eight years from 9 to 10 million. The high birth rate in the last years of the war and the first years after the war will have its effects on coming generations. While the number of new pupils for the elementary schools amounts to approximately 200 000 for the years 1949 1951, this number will be 270,000 in 1952. The high schools will have to absorb the effect of this increase in 1958 when the number of those who are 12 years of age will be approximately 40 per cent higher than in 1957.

These figures are from the second publication of the Committee for the Birth Problem of the Institute. In the first publication one may find the aims and program of the same committee. The institute is considering an investigation into the relation of mentality and growth of the family. Other investigations are in progress concerning the social and economic background of the trend of the birth rate, the consequence of the changed position of women in social life and the influence of social laws.

Phacomatosis

In 1922 J van der Hoeve, professor of ophthalmology, University of Leyde introduced the conception of phacomatosis. He combined tuberose sclerosis (Bourneville's disease), neurofibromatosis (von Recklinghausen's disease) with von Hippel-Lindau's disease and Sturge Weber's disease. These diseases are similar in their distribution of pathologic processes (skin, eye and nervous system) and their congenital (familial or hereditary) character. Later it was shown that besides the complete syndromes many incomplete and mixed forms occurred.

W A den Hartog Jager (neurological department, University Amsterdam) describes two new cases in the *Folia psychiatrica et neurochirurgica neerlandica* (52 356 [Oct] 1949) The first case is of a transitional form between Klippel-Trenaunay's syndrome and von Hippel Lindau's disease, a relationship which was never described before nevus varicosus osteo hypertrophicus combined with angiomatosis cerebelli (and choreoiditis) in a man of 22 years with a partial giant growth of the left leg Until November 1948 he was completely healthy and worked as a farmhand Then he experienced a severe headache, tinnitus, vomiting, diplopia and misty sight In February 1949 a large cyst in the right side of the cerebellum was removed successfully There were also a small superficial cyst in the right side of the medulla oblongata and an angiomatous tumor on the left side, the medulla was covered with large abnormal vessels The second case was of a man of 37 years suffering from a congenital lymphangioma cavernosum of one leg combined with intradural angioma venosum

Haverhill (Mass) Fever

N Lubsen, A B J van der Plaats and F H Wolthuis (Amsterdam) described in the *Nederlandsch tijdschrift voor geneeskunde* (1 102, 1950) a case of ratbite fever not caused by Spirillum minus but by Streptobacillus moniliformis, the organism which was isolated for the first time by Schottmüller in 1914 from the blood of a patient bitten by a rat The same organism was found in 1926 in an epidemic at Haverhill, Mass , of erythema arthriticum epidemicum (86 cases), probably caused by unheated milk infected by rats The Amsterdam case was of a medical student, bitten by a tame rat From the blood and from the skin pustule Streptobacillus moniliformis was isolated Moreover, this bacillus was isolated from the throats of 2 out of 20 rats of the same laboratory

Streptomycin and the Vestibular System

A de Kleyn and J B van Deinse (Amsterdam) established an experimental study of the toxic action of streptomycin on the vestibular system of rabbits It appeared that in most cases the semicircular canal reflexes disappear first and much later the otolith reflexes Streptomycin appears to exercise a paralyzing influence on the central vestibular nuclear area (*Nederl tijdschr v geneesk* 1 106, 1950)

DENMARK

(From a Regular Correspondent)

COPENHAGEN, March 24, 1950

Professional Secrecy

A judgment given by the Court of Appeal on February 15 of this year promises to be of far reaching importance to the medical profession in Denmark The case in question was that of a married pregnant woman admitted to a public hospital with signs of poisoning who died a few days later An autopsy and medicolegal investigation showed that death was due to lead poisoning The patient had taken a preparation of lead on several occasions with the obvious intent to induce abortion There was also the possibility that other persons had cooperated with her in these proceedings and that she had incriminated such a person or persons in statements made confidentially to the senior doctor of the hospital He was accordingly asked to give evidence Though he was prepared to be explicit with regard to the strictly factual circumstances concerned with the patient's illness and death, he refused to disclose any information she might have given him in confidence Judgment went against the doctor in the first instance, and it was argued by the prosecution that the patient's death released the doctor from his obligation to treat her alleged confession as coming under the rule of professional secrecy However, the Court of Appeal has reversed this judgment, holding that death does not necessarily absolve a doctor from his duty to observe professional secrecy

This is the first clearcut legal judgment in this country with regard to professional secrecy for doctors since the law of 1934 was enacted This law presents many loopholes It makes plain that a doctor may withhold secrets concerning the private lives of his patients when they have confided in him as a doctor But this privilege or duty on the part of a doctor may be overridden if his patient consents to his statements being made public A doctor's professional secrecy may also be disregarded if his evidence is expected to be of decisive importance to the outcome of the case or if it is of such a nature that the community or parties concerned are justified in requiring full publicity

After-Effects of Spinal Anesthesia

The incidence of after-effects of spinal anesthesia has been placed as low as 1 per 1,000 and as high as 75 per cent, with a spate of intermediate estimates during the past 40 years To obtain information on the subject, Dr Gunnar Everberg, of St Luke's Hospital in Copenhagen, addressed a questionnaire to patients who had undergone spinal anesthesia between September 1942 and March 1948 at his hospital They numbered 875 Some of them had died, and others did not answer Among the 771 who replied there were as many as 174 (22 2 per cent) who complained of ill effects Clinical reexamination of many of the complainants indicated no obvious relation between the complaints and the spinal anesthesia

For control, Dr Everberg addressed inquiries to 111 patients who had been anesthetized with a hexobarbital preparation (citodan) There had been no record of late neurologic complications due to this drug In 21 of the 111 cases (18 9 per cent) there were complaints similar to those made about spinal anesthesia With these two percentages so much alike, one is inclined to suspect that many of the complaints of the after-effects of spinal anesthesia were irrelevant But Dr Everberg is not prepared to accept as perfect the spinal anesthesia hitherto in vogue at his hospital (Quarella's method with 2 cc of a 1 200 solution of dibucaine hydrochloride [percaine] injected in one dose between the first and second lumbar vertebrae) He advises further and more systematically conducted investigations over a fairly long period by a team of workers consisting of a neurologist, a psychiatrist, a surgeon and a general practitioner His own study was reported on briefly last year at the Surgical Congress in Helsingfors and has been published in some detail in Danish

Renal Complications of Sulfonamide Treatment

The many articles which have recently appeared in the Danish medical press on this subject reflect the uneasiness felt over the risk of fatal anuria following the administration of one or other of the sulfonamides In Danish medical journals alone records have been published of 34 patients with anuria, 6 of these died Dr N I Nissen, Dr K Aagaard and Dr E Flindt-Hansen of Frederiksberg Hospital have studied the effects of various sulfonamides on 4,751 patients treated between 1939 and 1947 and have concluded that there is not yet available a preparation in this group of drugs which can be guaranteed not to injure the kidneys Although lucosil (N,[5-methyl-1,3,4-thia[diazole-2-yl]-sulfanilamide) is rapidly excreted and may therefore not have so prolonged an effect as less soluble preparations, it is in the experience of these doctors less likely to cause renal complications than its competitors in the same field It was hoped that large doses of an alkali such as sodium bicarbonate alone or in combination with other drugs would provide protection against renal complications, but the arguments in favor of this precautionary measure are based largely on experiments on healthy animals, which cannot be compared with sick human beings

NORWAY

(From a Regular Correspondent)

OSLO, March 9, 1950

Recent Advances in Pediatrics

Three events in our two university towns (two in Oslo and one in Bergen) offer promise of making 1950 notable in the history of pediatrics in Norway At the Rikshospital in Oslo the pediatric department, with its two score beds, has for many years been an object of criticism from the architectural point of view The buildings were not planned originally to serve the needs of a children s hospital, and the facilities provided for this purpose have been inadequate The late Professor Frölich in charge of this department, did he could to provide better quarters, and his successor, Professor Salomonsen, has striven valiantly for the creation of an entirely new department. The project was well on the way to realization when the Germans invaded Norway on April 9, 1940 Little was done during World War II Directly after it, the generosity of Sweden put new funds at the disposal of the sponsors of the new pediatric department Professor Lichtenstein of Sweden did much to help Professor Salomonsen in putting into effect the proposal by Dr Lindberg (Sweden) that the funds collected in Sweden be spent on children s hospitals in Norway This year the new pediatric department, with some 110 beds will be opened on the grounds of the old Rikshospital What is probably the most striking innovation is a wing in this department devoted to psychiatry The recent appointment of a woman psychiatrist from Denmark is an outward and visible sign of the importance now attached to the psychiatric problems of childhood.

Elsewhere in Oslo, the City Hospital at Ullevaal has made available a new psychiatric department with some 50 beds for children, under the direction of Dr Roald Rinvik. In Bergen, the university has also benefited from the postwar collection of funds in Sweden on behalf of Norway In the care of Professor Sundal, this new pediatric hospital—the second university hospital of its kind in Norway—promises to be a model It also will have a special department dealing with psychiatric problems of childhood

Relative Frequency of Various Forms of Cancer

Dr Rolf Bull Engelstad, who, before his recent and sudden death, had been in charge of the Radium Hospital in Oslo, commented on the latest annual report (for 1947) on deaths from cancer in Norway In this year 4,883 persons died of malignant growths (2,282 males and 2 601 females) In 2,973 cases (61 per cent of the total) the digestive tract was involved. In 4 per cent the lesion was situated in the respiratory tract There were only 30 fatal cases (0 6 per cent of the total) of carcinoma of the skin, a testimony to the efficacy of the modern treatment of cancer in this situation At the Radium Hospital alone as many as 535 patients were treated for skin cancer in 1947 Dr Engelstad had much to do with the creation of the new National Association Against Cancer in Norway, and it was his ambition that this body should create a national register of every case of cancer treated in a hospital or ending fatally as such For lack of such a register, Dr Engelstad's estimate of 8,000 cases of cancer at the present time in Norway is necessarily only approximate and is probably too low, as he himself admitted

"Caripito Itch"

One of the many duties of the City Hospital of Bergen, the second largest town in Norway is to give medical advice by wireless to ships at sea requesting it Sometimes such requests are puzzling, for example, Dr J Böe on Feb 28, 1949, received the following radiogram from the captain of a Norwegian 16 000 ton tanker in the Atlantic "If possible telegraph medical advice for so-called Caripito itch. Cause dust from the wings of moths The whole crew attacked. The rash reminiscent of the primula flower Violent itching No fever Have given remedies for itch, but result negative." Dr Böe had never heard of Caripito itch, and the specialists in diseases of the skin and tropics as well as textbooks on these subjects consulted by him could give no information. He recommended ephedrine tablets and frequent washing with a weak solution of ammonia Two days later the captain reported that his patients were convalescing

Later the captain wrote that 41 of the crew of 44 had suffered from this itch, which in some cases had caused insomnia in spite of soporifics Water applied to the skin had made matters worse. The captain added that he had visited Caripito several times earlier without this mishap but that the harbor master had warned him about it. When he last visited Caripito there had been swarms of moths on board ship, and the season had been rainy

Dr Böe has now collected some supplementary information about this curious complaint Caripito is a harbor on the San Juan River in Venezuela, about 100 kilometers from the coast It has been open, at least to tankers, since 1935 Dr F M Urdaneta of Caripito reports that seamen on tankers coming from this port are subject to this complaint, which is provoked by the hairs from the wings and abdomens of moths belonging to the family Saturniidae, genus Hylesia. It has not yet been allocated to the species to which it belongs, according to the entomologist Dr Pablo Anduze. As long ago as 1918, Leger and Monzels showed that dust from this moth provokes edema, a papular erythema and urticaria Pending the selection of a more scientific name (and probably thereafter also), this ailment will be called Caripito itch, the name given it by seamen

Inoculation Hepatitis

The suspicion, based on postmortem observations, that some of the cases of acute yellow atrophy of the liver may have been due to inoculation hepatitis led Dr F B Hartvigsen to scrutinize all the cases, a total of 19, dealt with at the pathologic laboratory of the Rikshospital in Oslo in the period Jan 1, 1941-Dec. 1, 1949 Only twice did he find conditions fulfilling the requirements for the diagnosis of inoculation hepatitis In these 2 cases signs of hepatitis had developed within the 40 to 120 day incubation period after the transfusion of plasma. In both cases the cause of death was acute yellow atrophy of the liver, and no information was obtainable as to the occurrence of epidemic hepatitis among the contacts of these patients In both cases, American dried plasma had been used two to three months before the outbreak of the hepatitis Dr Hartvigsen is inclined to regard these 2 cases, but none of the others, as illustrative of the risks of blood transfusions given without the precautions now enjoined by the public health authorities in Norway

The Late Prof Francis Harbitz

Dr Francis Harbitz, who was professor of pathologic anatomy at the University of Oslo died at the age of 83 He retired in 1938 as a professor, but he continued to take an active part in the scientific world. He had taught pathologic anatomy to many generations of students and had been prominent as a medicolegal expert. His many publications revealed him as closely observant and critical Among his most important works were studies of endocarditis and of tuberculosis in childhood He was at one time chairman of the Norwegian National Association Against Tuberculosis and the Cancer Committee of the Norwegian Medical Association and had been active in many other scientific organizations in Norway Sweden Denmark and Finland

Correspondence

FALSE POSITIVE SCHICK REACTIONS

To the Editor.—In their article on false positive reactions to the Schick test (J. A. M. A. 142: 390 [Feb. 11] 1950) Cohen, Schneck and Dubow reported that comparison of results of Schick tests with circulating diphtheria antitoxin in 114 young women revealed 51 of 52 specimens of blood from Schick-negative subjects contained more than 0.01 unit of antitoxin per cubic centimeter while only 48 of 62 Schick-positive subjects had less than 0.01 unit. Further examination of those Schick-positive reactors with more than 0.01 unit, comprising 23 per cent of the total number of Schick-positive reactors, disclosed high circulating antitoxin titers, in some cases more than 10 units per cubic centimeter. The authors concluded, "The present Schick technic is significant if the reaction is negative, but there is a certain percentage of inaccuracy in positive reactions."

These results are so at variance with those obtained at the School of Medicine, Western Reserve University, that I should like to cite a report on this subject which I presented before the Society for Experimental Biology and Medicine in Cleveland in 1935. Simultaneous Schick tests (read by Dr. J. A. Doull) and blood serum antitoxin determinations (by Dr. D. T. Fraser in Toronto and me) were performed on 203 medical students at Western Reserve University from 1931 to 1935. Serums from the first group of 87 subjects tested in 1931-1932 were titrated to the 0.01 unit level; subsequently, for the remaining 116 students, titrations were carried to the lower limit of 0.002 unit per cubic centimeter. Comparison of the Schick tests and serum titers in the first group of 87 subjects revealed agreement in 84, i. e., serums from Schick-negative subjects contained 0.01 unit or more of diphtheria antitoxin per cubic centimeter, while Schick-positive subjects had less than 0.01 unit; 3 cases failed to show agreement in that, although the Schick reactions were read as negative, the serums contained less than 0.01 unit. In the second group of 116 students the combined results agreed in all instances, with Schick-negative reactors showing more than 0.004 unit and Schick-positive reactors less than 0.002 unit per cubic centimeter. Observations on the few subjects whose serums had more than 0.002 and less than 0.01 unit indicated the true level of the Schick test to be about 0.004 unit of antitoxin per cubic centimeter. This fact in turn suggests that in the 3 disagreements in the total 203 combined tests the negative Schick reactions would have been verified as correct if titration of these 3 serums had been carried below the 0.01 unit level employed at that particular time.

Robert C. Hahn, M.D., Elyria, Ohio

VISUALIZATION OF ADRENAL GLAND

To the Editor.—Walters and Sprague in their paper (Hyperfunctioning Tumors of the Adrenal Cortex: Study of Nine Cases, J. A. M. A. 141: 653 [Nov. 5] 1949) mention the injection of air around the upper pole of the kidney to permit roentgenographic visualization of the adrenal gland. I wish to call attention to the fact that in a case of periduodenal tumor the roentgenogram of the stomach showed the whole stomach filled with air and through the air one could see the clear contours of the upper pole of the kidney and of the adrenal gland. The roentgenogram was taken with the patient in a recumbent position. I would like to suggest the use of the simple method of filling the stomach with air to permit visualization of the left adrenal gland to facilitate the decision as to which adrenal gland should be exposed first.

Dr. Samuel Kraus,
Kfar Neter, Israel

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Contracts: Agreements in Restraint of Medical Practice, Valid if Reasonable.—This was an action to enjoin the defendant from maintaining an office for the practice of medicine in a particular locality in violation of the terms of a restrictive covenant entered into ancillary to the sale of a hospital. From a court order granting a temporary injunction the defendant appealed to the Supreme Court of Georgia.

The plaintiff negotiated with the defendant and his brother, W. E. Burdine, who were practicing medicine together, with their offices in the Burdine Hospital, for the purchase of the hospital and its good will. W. E. Burdine, owner of the land on which the hospital was located, conveyed to the plaintiff the land and hospital, and at the same time the defendant entered into a contract in which he agreed not to establish a clinic or office in Fannin County, Georgia, for a period of ten years but reserved the right to practice medicine in Fannin County by house calls made from an office in an adjoining county. The deed from W. E. Burdine conveying title to the land and hospital contained a similar covenant. The plaintiff alleged that subsequent to the execution of the deed and contract the defendant, James Burdine, opened the "Health Institute, Clinic and Pharmacy" in Fannin County and was practicing medicine in violation of the terms of the agreement.

The defendant argued that contracts of this nature between physicians tend to the public detriment, in that there is an urgent need of doctors to alleviate the pain and suffering of the public, and he introduced affidavits to the effect that no community should have fewer than one physician for each 1,000 or 1,500 population, that to make a physician practice without a clinic or laboratory facilities would be injurious to his patients and that it was to the best interest of the people to keep all the physicians and hospitals now located in the county.

The Supreme Court said that the defendant's argument presented a forceful reason for condemning the action of physicians in entering into such a contract but that it was without authority to abrogate such a contract if its terms were reasonable. The right to enter into such a contract has long been recognized by this court, the Supreme Court continued, and, so long as the contract meets the tests laid down in *Rakestraw v. Lanier* (30 S. E. 735), this court must hold the contract valid. In that case it was said "A distinction exists between that class of contracts binding one to desist from the practice of a learned profession, and those which bind one who has sold out a mercantile or other kind of business, and the good will therewith connected, not to again engage in that business. In the former class there should be a reasonable limit as to time, so as to prevent the contract from operating with unnecessary harshness against the person who is to abstain from practicing his profession at a time when his so doing could in no way benefit the other contracting party. In the latter class such limit is not essential to the validity of the contract, but the restraint may be indefinite."

The contract here under consideration, said the court, contains a limitation as to both time and space. Unquestionably it is reasonable as to its space limitations, being limited to one county of this state. After mature deliberation we are of the opinion that it is also reasonable as to its time limitations. While it prohibits the defendant from maintaining a clinic, hospital or office in Fannin County for a term of ten years, it yet permits him, from an office outside the county, to practice medicine within the county when making house calls on patients in the county. It does not, therefore, purport to prohibit him entirely from practicing his profession within the territorial limits embraced in the contract.

Although the allegations of the petition reveal that the physical properties, that is the land and the hospital located thereon, were in the name of the brother of the defendant and were purchased from him, continued the court, the allegations further reveal that the defendant and his brother were engaged in the practice of medicine together at the hospital and both negotiated with the plaintiff for the sale of their business and both agreed to sell and did sell at the same time and place their business and good will both executed written instruments at the same time Accordingly the fact that the real estate was not owned by the defendant does not render the contract made by him unenforceable

The evidence the court concluded, clearly shows that the defendant was continuously violating the covenant contained in the contract executed by him The judgment of the trial court granting a temporary injunction was therefore affirmed.—*Burdine v Brooks 55 S E (2d) 605 (Ga, 1949)*

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners *Parts I and II* Various locations June 19 21 Final date for accepting applications is May 19 *Part III* Twenty nine centers June 6-29 Registration closes on May 6 Exec. Sec Mr E S Elwood 225 S 15th Street, Philadelphia

EXAMINING BOARDS IN SPECIALTIES

American Board of Anesthesiology *Written* Various locations July 21 *Oral* Chicago Oct. 8 11 Sec Dr Curtiss B Hickcox 745 Fifth Ave. New York 22

American Board of Internal Medicine *Oral* San Francisco June 21 23 The oral examinations in the subspecialties will be held at the same time and places *Written* Oct 16 Final date for acceptance of applications is May 1 Asst. Sec. Dr William A. Werrell, 1 West Main Street Madison 3 Wis

American Board of Neurological Surgery *Oral* Chicago June 3 Applications no longer accepted Chicago Oct 1950 Final date for filing applications is April 30 Sec. Dr W J German 789 Howard Ave. New Haven Conn

American Board of Obstetrics and Gynecology Inc. *Oral Part II* Atlantic City May 21 27 Sec. Dr Paul Titus 1015 Highland Bldg., Pittsburgh

American Board of Ophthalmology *Written*. Various Centers January 1951 Final date for filing applications is July 1 1950 *Practical*. Boston May 22 26 Chicago Oct. 2 6 West Coast, Jan 1951 Sec. Dr Edwin B Dunphy 56 Ivie Road Cape Cottage Maine.

American Board of Otolaryngology *Oral* San Francisco May Chicago October Sec. Dr Dean M Lierle, University Hospital, Iowa City

American Board of Pediatrics San Francisco June 30-July 2 Exec Sec Dr John McK Mitchell 6 Cushman Road, Rosemont Pa

American Board of Physical Medicine and Rehabilitation *Oral and Written* Boston Aug 26-27 Final date for filing applications is April 1 Sec Dr Robert L. Bennett 30 N Michigan Ave., Chicago.

American Board of Plastic Surgery *Oral* May June. Sec. Dr Louis T Byars 4647 Pershing Avenue St. Louis Mo.

American Board of Preventive Medicine and Public Health *Written* Portland Ore May 28 *Oral* Portland Ore May 29 Sec., Dr E. L. Stebbins 615 N Wolfe St Baltimore 5 Md

American Board of Proctology *Part I* San Francisco Dallas, Minneapolis and Philadelphia May 13 Sec. Gen Dr Louis A. Buie, 102 110 Second Ave. S W Rochester Minn

American Board of Psychiatry and Neurology San Francisco, June 23 24 Applications no longer accepted Next examination December 1950 Final date for filing applications is Sept. 1

American Board of Radiology *Oral* Chicago, week of June 18. Sec. Dr B R. Kirklin 102 10 Second Ave S W., Rochester Minn

American Board of Surgery *Written* Various centers Oct. 25 Final date for filing applications is July 1 Sec. Dr J Stewart Rodman, 225 South 15th Street Philadelphia.

American Board of Urology Chicago, Feb 10-14, 1951 Final date for filing applications is Sept. 1 1950 Sec Dr Harry Culver 7935 Sunnyside Road Minneapolis 21

BOARDS OF MEDICAL EXAMINERS

Alabama *Examination* Montgomery June 27 29 Sec Dr D G Gill, 519 Dexter Avenue Montgomery

Alaska * Juneau Sept. 5 Special examinations given on application. Sec Dr W M Whitehead Box 140 Juneau.

Arkansas * *Examination* Little Rock, June 8 9 Sec Dr Joe Verser Harrisburg Homeopathic Little Rock June and November Sec., Dr Carl S Bungart, 105 N 14th St. Fort Smith. *Eclectic* Little Rock June 8-9 Sec Dr Clarence H Young 1415 Main Street, Little Rock.

California *Examination Written* San Francisco, June 19 22 Los Angeles Aug 21 24 Sacramento Oct. 16-19 *Examination Oral and Clinical for Foreign Medical School Graduates* San Francisco June 18, Los Angeles Aug 20 San Francisco Nov 12 *Reciprocity Oral Examination* San Francisco June 17 Los Angeles Aug 19 San Francisco Nov 11 Sec. Dr Frederick N Scatena, 1020 N Street, Sacramento 14

Connecticut * *Examination* Hartford July 11 12 Sec. to the Board Dr Creighton Barker, 160 St. Ronan St., New Haven *Homeopathic* Derby July 11 12. Sec. Dr Donald A Davis 38 Elizabeth St. Derby

Delaware *Examination* Dover July 11 13 *Reciprocity* Dover July 20 Sec. Dr J S McDaniel 229 S State St. Dover

District of Columbia *Examination*. Washington May 8 9 Sec., Dr Daniel L. Seckinger 4130 E. Municipal Bldg Washington 1

Florida * Jacksonville, June 25 27 Sec. Dr Frank D Gray 12 N Rosalind Avenue, Orlando.

Georgia *Examination*. Atlanta and Augusta June. *Endorsement*. Atlanta, June. Sec., Mr R. C. Coleman 111 State Capitol, Atlanta 3

Hawaii *Examination* Honolulu. July 10-13 Sec Dr L. L. Tilden 1020 Kapiolani St. Honolulu.

Idaho Boise, July 10 Sec., Mr Armand L. Bird 305 Sun Bldg., Boise.

Indiana *Examination* Indianapolis June. Sec., Dr Paul R. Tindall, 1138 K of P Bldg Indianapolis.

Iowa * *Examination* Iowa City June 12 14 Sec. Dr M A. Royal 506 Fleming Building Des Moines 19

Kansas Kansas City June 7 8. Sec., Dr J F Hassig 905 N 7th Street, Kansas City

Kentucky *Examination* Louisville, June 14-16 Sec., Dr Bruce Underwood 620 S 3rd Street, Louisville 2.

Louisiana New Orleans June 8-10 Sec. Dr Roy B Harrison 1507 Hibernia Bank Bldg New Orleans

Maine *Examination and Reciprocity* Augusta, July 11 12 Sec. Dr Adam P Leighton 192 State St. Portland.

Maryland *Examination* Baltimore, June 20-23 Sec. Dr Lewis P Gundry 1215 Cathedral Street, Baltimore 1 *Homeopathic* Baltimore, June 20-21 Sec. Dr John A Evans 612 W 40th St. Baltimore.

Massachusetts *Examination*. Boston July 11 14 Sec. Dr George L. Schadt Room 37 State House Boston 33

Mississippi Jackson June 20-21 Asst Sec. Dr R N Whitfield Jackson 113

Missouri Examination. St. Louis May 31 June 2 and June 7 9 Exec. Sec. Mr John A Hailey Box 4 State Capitol Building Jefferson City

Nebraska * *Examination* Omaha, June 5-7 Director Bureau of Examining Boards Mr Oscar F Humble, 1009 State Capitol Building Lincoln 9

New Hampshire Concord Sept. 13 Sec., Dr John Samuel Wheeler 107 State House, Concord

New Jersey *Examination* Trenton, June 20-23 Sec., Dr E. S Hallinger 28 West State Street, Trenton.

New York *Examination* Albany Buffalo New York and Syracuse June 27 30 Sec. Dr Jacob L. Lochner Jr 23 S Pearl St Albany

North Carolina *Written* Raleigh June 19 22 *Endorsement* Raleigh June 19 Sec. Dr Ivan Procter 226 Hillsboro Street Raleigh.

North Dakota *Examination* Grand Forks July 5 7 *Reciprocity* Grand Forks July 8. Sec., Dr C. J Glaspel Grafton.

Ohio *Examination* Columbus June 14-17 Sec. Dr H M Platter 21 W Broad St. Columbus 15

Oklahoma * *Examination*. Oklahoma City June 7-8 Sec., Dr Clinton Gallaher 813 Braniff Building Oklahoma City

Pennsylvania *Examination* Philadelphia and Pittsburgh July 11 14 Act. Sec Mrs Marguerite G Steiner 351 Education Bldg Harrisburg

Puerto Rico *Examination* Santurce Sept. 5 Sec. Mr Luis Cueto Coll Box 3717 Santurce.

South Carolina *Examination*. Columbia June 26-29 *Reciprocity* First Monday of each month. Sec., Dr N B Heyward, 1329 Blanding Street, Columbia.

South Dakota * Sioux Falls July 18-19 Sec. Dr C. E. Sherwood 300 First National Bank Bldg Sioux Falls

Texas * *Examination*. Austin June 19 21 Sec. Dr M H Crabb 1714 Medical Arts Bldg Fort Worth 2.

Utah *Examination* Salt Lake City June. Dir., Dr Frank E. Lees, 324 State Capitol Building Salt Lake City

Vermont *Examination* Burlington June. Sec Dr F J Lawliss Richford.

Virginia *Examination*. Richmond June 23 24 *Endorsement* Richmond June 22 Sec. Dr K. D Graves 631 First St. S W Roanoke.

West Virginia *Examination* Charleston July 10-12 Sec Dr N H Dyer Capitol Bldg Charleston

Wisconsin * Milwaukee, July 11 13 Sec. Dr C A. Dawson River Falls.

Wyoming *Examination* Cheyenne June 5 Sec. Dr Franklin D Yoder Capitol Bldg Cheyenne.

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* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Alaska *Examination* Juneau last week in August Sec. Dr C Earl Albrecht, Box 1931 Juneau.

Arizona *Examination* Tucson, June 20 Sec. Mr Francis A. Roy Science Hall University of Arizona Tucson

Arkansas *Examination* Little Rock, May 9 Sec., Mr L. E. Gebauer 1002 Donaghey Building Little Rock.

Connecticut *Examination* New Haven June 10 Exec. Asst. State Board of Healing Arts M G Reynolds 110 Whitney Ave. New Haven.

Florida *Examination* Gainesville June 3 Sec. Mr M W Emmel, University of Florida Gainesville.

Michigan *Examination* Detroit and Ann Arbor May 12 13 Sec., Miss Eloise LeBeau 101 N Walnut St. Lansing

Oregon Portland June 17 Sec., Dr C D Byrne, University of Oregon Eugene.

Rhode Island *Examination* Providence May 10 Administrator of Professional Regulation, Mr Thomas B Casey 366 State Office Bldg., Providence.

South Dakota Vermillion, June 2 3 Sec., Dr Gregg M. Evans, 310 E. 15th Street, Yankton.

Wisconsin Milwaukee June 3 Madison Sept. 30 Sec. Mr W H. Barber Scott and Watson Sts Ripon

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in Continental United States and Canada for a period of three days Three journals may be borrowed at a time Periodicals are available from 1939 to date Requests for issues of earlier date cannot be filled Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested) Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order Reprints as a rule are the property of authors and can be obtained for permanent possession only from them

Titles marked with an asterisk (*) are abstracted below

American Journal of Clinical Pathology, Baltimore

19 1095-1186 (Dec) 1949

Pathology of Chemical Carcinogenesis H L Stewart —p 1095
Solitary "Tumors" of Atypical Amyloid (Paramyloid) W H Bauer and J J Kuzma —p 1097
Improved Method of Counting Blood Platelets and Its Evaluation in Blood of Rabbits G J Scheff and P H Ralph —p 1113
Effect of Splenic Extracts on Blood Platelet Counts in Rabbits G J Scheff and I M Scheff —p 1122
*Replacement Transfusion Following Administration of Incompatible Blood Report of Case with Successful Outcome J E Conley, J Erbes, F I Stoddard and J W Irye —p 1131
Behavior of Virus of Poliomyelitis in Culture of Endamoeba Histolytica A M Young O Felsenfeld and C L Bird Jr —p 1135
*Congenital Pulmonary Aspiration Tuberculosis Report of Case A J Hertzog S Chapman and J Herring —p 1139
Fulminating Septicemia Caused by Mima Polymorpha Report of Case J Faust and M Hood —p 1143

Replacement Transfusion Following Administration of Incompatible Blood —Conley and his associates cite the case of a woman operated on for suspected ectopic pregnancy Operation revealed a ruptured graafian follicle cyst and about 800 cc of blood in the peritoneal cavity The patient was given a transfusion of 500 cc of type AB, Rh-positive blood during the operation The transfusion was followed by an intravenous infusion of 1,000 cc of 5 per cent dextrose in 0 85 per cent sodium chloride solution A second transfusion of 500 cc of type O, Rh-positive blood was given two hours after the operation, to replace the blood lost during the operation This was followed by infusion of 1,000 cc of 5 per cent dextrose in distilled water The patient did not void for ten hours after the operation She was catheterized and reddish brown urine was obtained Retyping of the patient's blood revealed that it belonged to type O, not to type AB, indicating that the first transfusion of 500 cc was with incompatible blood Treatment consisted of an infusion of 1,000 cc of fifth-molar sodium lactate solution followed by 1,000 cc of 10 per cent dextrose in distilled water During the first sixteen hours after the operation, when a total of 5,000 cc of fluid was given intravenously, less than 400 cc of urine was obtained It was now decided to give a replacement transfusion by infusing blood into the saphenous vein at the right ankle and into a vein on the dorsum of the left foot The right radial artery was exposed and a cannula inserted for exsanguination After a total of 5,000 cc of blood had been infused, which was about 2,000 cc more than the amount withdrawn, the patient became dyspneic and rales were heard over the bases of both lungs These were believed to indicate pulmonary edema secondary to the increase in blood volume After the removal of another 2,000 cc of blood there was improvement in the patient's condition Exchange transfusion was continued until 6,000 cc had been given and 5,000 cc removed The patient was discharged nine days after the operation The authors conclude that replacement transfusion, as a method of removing the nephrotoxic products of intravascular hemolysis, can be employed in adults without great risk

Congenital Pulmonary Aspiration Tuberculosis —Hertzog and co-workers believe that tubercle bacilli may involve the endometrium in tuberculous pregnant women and produce lesions in the placenta The rarity of such infection is probably explained by the fact that women with genital tuberculosis are usually sterile as a result of tuberculous salpingitis Tuberculosis of the fetus occasionally occurs The bacilli usually enter the umbilical vein of the fetus leading to the development of a primary focus of tuberculosis in the liver Cases of congenital tuberculosis in which the infection is limited entirely to the lungs, as seen in an aspiration type of infection, are extremely rare Reichle and Wheelock, in a review of literature in 1939, found only 7 unequivocal cases of tuberculosis of the aspiration type To this small number of well established cases of congenital aspiration tuberculosis the authors add another The baby, a male, was born five weeks prematurely and died 22 days after birth The postmortem diagnosis was congenital aspiration pulmonary tuberculosis Direct smears, cultures and guinea pig inoculations from the pulmonary tissue were positive for Mycobacterium tuberculosis Microscopic examination of the remaining organs showed no evidence of miliary spread of the infection Postpartum cultures from the maternal cervix were positive for Myco tuberculosis Roentgen studies of the chest showed no abnormalities A postpartum curettage showed the endometrial stroma to contain epithelioid tubercles A biopsy of the cervix also showed tuberculosis A guinea pig inoculated with endometrial curettings developed tuberculosis

American Journal of Psychiatry, New York

106 481-560 (Jan) 1950

Amnesia G Wilson, C Rupp and W W Wilson —p 481
Human Factors Involved in Providing Better Nursing Treatment and Care of Patients in Mental Hospitals L S Anderson —p 486
Approach to Solution of Mental Dysfunction Through Brain Enzyme Studies W Ashby —p 491
Psychiatric Evidence in Criminal Cases K G Gray —p 497

American Journal of Tropical Medicine, Baltimore

29 845-996 (Nov) 1949 **Partial Index**

Experimental Infection of Rabbit with Endamoeba Histolytica J E Tobie —p 859
Studies of Influence of Oxyquinoline Drugs on Growth of Endamoeba Histolytica as Measured in Blood Iodine Levels of Man A. A Knight, D W Tarun and J Miller —p 871
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Necrosis of Renal Papillae —According to Robbins and Angrist necrosis of the renal papillae is a rare lesion seen occasionally only at the autopsy table They report 14 cases of this disease seen at the Queens General Hospital The lesion is related to a similar one produced in experimental animals by a dietary deficiency of certain fatty acids One patient recovered Thirteen of the 14 patients were in the acute stage when they died The 8 diabetic patients as a group were younger, had a shorter clinical course and some were in coma when first seen The coma may have the appearance of a diabetic coma, but the acetonuria may be absent The nondiabetic patients were older, had a more prolonged clinical course and were usually males with prostatism and urinary tract infection. Experimentally, this lesion has been produced by specific chemical poisons and by fat-free diets whose essential defect appears to be the absence of certain long chain, unsaturated fatty acids. A parallelism is suggested between the disturbed fat metabolism in diabetic patients and that in nondiabetic patients with urinary obstruction and sepsis in nondiabetic persons, disturbed fat metabolism can also be induced experimentally with fatty acid deficient diets. Papillary necrosis may well be the homologue of cortical necrosis of the kidney on the basis of altered hemodynamics, as indicated by the work of Trueta, with spasm of the medullary vessels rather than of the cortical vasculature as the significant factor in the mechanism. Necrosis of the pyramids can heal completely. A single attack or multiple recurrent attacks of such papillary necrosis, with subsequent healing and epithelization, may represent one mechanism of hydronephrosis.

Portal Systemic Venous Shunts for Esophageal Varices.—Linton says that esophageal varices develop spontaneously because of obstruction to the return of the portal blood to the systemic venous system. The site of the portal bed block may be either in the liver, the intrahepatic type secondary to portal cirrhosis, or in the portal vein itself, the extrahepatic type seen in the so called Banti's syndrome. The block in the former develops as a result of scarring in the liver parenchyma. It occurs most frequently in cases of alcoholic and other forms of toxic cirrhosis and is the more common type. Thrombosis of the hepatic vein is another, though relatively rare, cause of the intrahepatic type of block. The portal bed block in the extrahepatic type may result from congenital obliteration of the portal vein. During the four years from 1945 to 1948, inclusive, venous shunts were performed in 34 patients at the Massachusetts General Hospital. The establishment of portal-systemic venous shunts represents a new and encouraging chapter in the treatment of bleeding esophageal varices secondary to portal hypertension. Splenectomy and the suture type of end to side splenorenal anastomosis with preservation of the kidney is the most satisfactory operative procedure. One should not do a splenectomy in a case of portal hypertension unless he is prepared to do a splenorenal anastomosis at the same operation, since this may be the only opportunity to construct a satisfactory portal systemic venous shunt. The postoperative studies over periods of four to thirty-four months in patients in whom satisfactory portal-systemic venous shunts have been performed reveal an encouraging cessation in bleeding from the esophagogastrointestinal tract and the maintenance of normal hemoglobin levels in the blood. A true evaluation of this method of treatment for bleeding esophageal varices secondary to portal hypertension must await a longer period of observation of the patients that have been treated by this method.

Clinical Manifestations of Rickettsialpox.—Rose points out that rickettsialpox, the most recently recognized form of the human rickettsioses, was first observed in 1946 and thus far has been confined exclusively to the metropolitan area of New York City. The etiologic agent was identified by Huebner and his associates as Rickettsia akari, a species which is serologically related to the spotted fever group of rickettsias. The disease is apparently transmitted to man by a blood-sucking mite, Allodermanyssus sanguineus, an arthropod parasite of rodents. R akari has been isolated from pools of these mites collected in dwellings where cases of rickettsialpox have recently occurred. Since the spring of 1947, 35 proved cases of rickettsialpox were seen at the Columbia-Presbyterian Medical Center. The onset of the illness is usually characterized by a primary cutaneous lesion at the site of inoculation by the arthropod vector. About a week later the patient has fever, chills, malaise and headache, followed shortly by a secondary papulovesicular cutaneous eruption which may resemble the rash of varicella. Rickettsialpox being a nonfatal disease, the need for specific therapy is not as urgent as it is for other rickettsial infections. The unmodified infection may cause severe constitutional symptoms, and the patient may be acutely ill for a few days to a week or more. In 1 case of rickettsialpox the author gave the patient streptomycin in a dosage of 0.5 Gm. every six hours, but the drug apparently failed to influence the natural course of the disease. More recently, 2 patients were treated early with aureomycin hydrochloride in a dose of 1.0 Gm. every six hours by mouth. In each of these cases the temperature fell precipitously to normal within twenty-four hours, accompanied with fading of the cutaneous eruption.

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Studies on Mechanism of Cardiac Injury in Experimental Hypothermia. K. Lange, D. Weiner and M. M. A. Gold.—p. 989
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Red Blood Cell Sensitivity in Caucasians. P. M. Neuda.—p. 1024
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Diagnosis of Pneumonia Preceding Tuberculosis. A. S. Hartz.—p. 1066
Clinical Observations on Atypical Lichen Planus and Related Dermatoses Presumably Due to Atabrine Toxicity. A. Feder.—p. 1078

Coronary Occlusion Associated with Chronic Rheumatic Heart Disease.—Gardner and White believe that, in the absence of signs of gross valvular lesions the presence of rheumatic heart disease may be overlooked in elderly patients and hence the real frequency of the association of this condition with coronary heart disease, if based on clinical records alone, may be underestimated. They studied necropsy material and compared the results with their more recent clinical records in order to check any discrepancy in clinical findings. In 6,000 consecutive necropsies they detected 436 cases of rheumatic heart disease and 513 cases of coronary heart disease, in 32 of which (7 per cent rheumatic and 6 per cent coronary cases) both conditions occurred. In 10,000 consecutive clinical cases rheumatic heart disease was diagnosed in 1,346 and coronary heart disease in 2,840, in 57 (4.2 per cent of the rheumatic and 2.0 per cent of the coronary cases) both conditions were present. Aortic valve disease was found in 28 of the 32 fatal cases of combined coronary and rheumatic heart disease. It was present in about two thirds of the fatal cases of uncomplicated rheumatic heart disease. Mitral valve disease was found in 27 of the 32. A completely correct antemortem diagnosis was made in only 7 of the 32 cases, although either rheumatic or coronary heart disease was diagnosed in 31 of the cases. Rheumatic heart disease was overlooked in 21 of the 32 patients. Complete diagnosis is an important preliminary to satisfactory management. The authors emphasize the value of careful auscultation in establishing the diagnosis of concomitant rheumatic heart disease. They found no evidence to suggest that rheumatic heart disease has any influence on the development of coronary artery degeneration.

Surgical Rehabilitation of the Coronary Cripple.—Thompson and Raisbeck regard the following factors as necessary in the selection of patients for the operation: the establishment of a positive diagnosis of coronary artery disease with angina, the lack of improvement after fairly prolonged medical treatment and an extreme degree of disability. Approximately 2 inches (5 cm.) of the fifth costal cartilage are removed, leaving the perichondrium. The pericardium is opened for a distance of 2 inches. Five to 10 minutes before the pericardium is opened the patient receives 5 cc. of 2 per cent procaine hydrochloride intravenously to desensitize the myocardium. After the pericardium is opened the fluid is aspirated and the anterior surface of the heart is inspected and palpated for previous infarcts, adhesions and the condition of the descending branch of the left coronary artery. Dry sterile talc is spread evenly over the heart so that the myocardium is white but the powder is not caked in one spot. The wound edges are protected from the powder by a moist gauze covering. The pericardium is loosely closed and the soft tissues are closed in layers. This operation, which can be performed in less than 30 minutes, is a means of producing a collateral circulation plus a myocardial hyperemia. The myocardial ischemia is overcome by extracardiac as well as intracardiac collaterals. The operation was performed on 36 patients. Six of these died in the hospital, and 1 other patient died three weeks later. Two others could not be traced. Of the remaining 27 patients 4 others have died, but 23 are living, 1 of whom has survived nine years since the operation Two thirds of the patients received some benefit from the operation The authors regard this type of surgical rehabilitation as excellent

Annals of Otol, Rhin and Laryngology, St Louis

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*Hazards of Intense Sound and Ultrasound H Davis, H O Parrack and D H Eldredge—p 732
Postmeningitic Complications with Particular Reference to Otologic Sequelae W L Grove and M J Fox—p 771
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Irradiation of Nasopharynx and Prevention of Deafness D F Proctor—p 825
Medical Care and Prophylaxis in Hearing Losses with Special Attention to Allergies R E Ashley—p 837

Hazards of Intense Sound and Ultrasound—According to Davis and co-workers there is no evidence that air-borne ultrasonic vibrations constitute a hazard to hearing or produce any specific effects on the nervous system or sense organs In general it is high intensities that are potentially hazardous, not high frequencies Sounds above 120 decibels stimulate the sense of touch and may cause temporary and possibly permanent hearing loss Levels above 140 decibels are painful to the ear, and exposures to such levels without special protection should be avoided A frequency of 6,500 cycles per second at 159 decibels caused nearly intolerable pain to 1 subject and ruptured his ear drum during a five minute exposure Some high-tone hearing loss above 10 000 cycles per second persisted after fourteen weeks The vague subjective feelings of fatigue, annoyance and irritation induced by extremely intense sound or vibration may represent nature's first warning of the presence of a stress that is not yet severe enough to cause more objective manifestations

Arch of Ind. Hygiene and Occupat Medicine, Chicago

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The Industrial Physician and Accident Prevention N H Dearborn—p 101
Chronic Lipid Pneumonia Following Occupational Exposure J P Proudfit, H S Van Ordstrand and C W Miller—p 105

Carbon Tetrachloride Poisoning—Norwood and his associates point out that a high percentage of American homes contain a can of cleaning fluid for removing spots from clothing or for other purposes The label seldom states that the fluid contains carbon tetrachloride in a high concentration, nor is any mention made of the toxic nature of the fluid The authors observed during the last twelve months 2 fatalities and 1 near fatality due to carbon tetrachloride poisoning Two of these were characterized by a lower nephron nephrosis syndrome When one treats patients for this condition, emphasis should be placed on frequent chemical tests of the blood, with therapy aimed at combating acidosis, low calcium and potassium levels and limiting the fluid intake to equal the output, considering the decrease or the absence of output from the kidney for a limited period The 3 patients were heavy consumers of alcoholic beverages Their histories corroborate the evidence of animal experiments and previous human cases that consumption of alcoholic liquor increases the risk of poisoning with carbon tetrachloride Four cases of mild industrial carbon tetrachloride poisoning and 51 cases of mild exposure resulting from improper working conditions are also discussed The conditions were corrected by substituting trichloroethylene for carbon tetrachloride and using it in a properly designed degreasing unit A plea is made for national regulations requiring labeling of compounds containing carbon tetrachloride, this should be required even for quantities less than 15 fluidounces, because far less than this quantity will cause death if inhaled or ingested One teaspoonful taken by mouth may be fatal The fumes from one cupful breathed in a poorly ventilated place may cause death Labels should state this and should also give the following warnings Use with adequate ventilation Avoid prolonged or repeated breathing of vapor Avoid prolonged or repeated contact with skin Do not take internally

Archives of Neurology and Psychiatry, Chicago

63 1-194 (Jan) 1950

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Archives of Otolaryngology, Chicago

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Dacryocystorhinostomy Report of 150 Cases of Dacryocystitis Occurring from 1938 to 1947 B Welt.—p 83
*New Neurosurgical Approach for Treatment of Otosclerosis. M Bordes-Valls—p 96
Otitis Media and Complications B R. Dysart—p 106

New Neurosurgical Approach for Treatment of Otosclerosis—Bordes-Valls advocates a new surgical approach to the middle ear and labyrinth The approach was devised not only for the fenestration operation but for all procedures in which access to the middle ear and labyrinth is required An incision is made in the skin and temporal muscle of the right temporoparietal region down to the bone The incision is perpendicular to the zygomatic arch and extends from the upper part of the helix upward for about 8 cm The temporal muscle is elevated and the bone bared A craniotomy as close as possible to the floor of the middle fossa is performed The dura is elevated until the eminentia arcuata becomes visible, this is about 3 cm from the cranial wall The tegmen tympani now becomes visible just lateral to the eminence The porosity of the bony tegmen is characteristic at this point With the use of an electric burr the tegmen is thinned down and perforated This perforation is then enlarged with a curet until the head of the malleus and the lateral semicircular canal become visible The final hole should be about 10 to 15 mm in diameter At this point, continuous irrigation and suction is instituted The head of the malleus is disarticulated from the incus To prevent ossicular stiffening, it is recommended that the incus be removed From here on the creation of the fenestra follows the technic developed by Lempert. The author discusses the advantages of his neurosurgical approach and describes a case in which he employed this technic for the treatment of otosclerosis

Archives of Pediatrics, New York

66 537-576 (Dec) 1949

Disorders of Respiration in Bulbar and Other Forms of Poliomyelitis with Special Reference to Muscle Spasm J F Pohl —p 537
Congenital Heart Diseases H Mautner —p 546
Napkin Dermatitis Caused by Ammoniacal Urine Treatment with Methionine L S Goldstein —p 553
Anomalies and Diseases of Umbilical Cord S E Pascucci —p 561
Voice and Voice Problems in Children I W Karlin —p 567

Effect of Muscle Spasm on Respiration in Poliomyelitis —Pohl reports 368 patients with poliomyelitis who were admitted to one of the receiving units in Minneapolis during the 1946 epidemic. Forty three of the 368 patients had breathing disorders Death occurred in 18 patients (4 9 per cent) Breathing disorders were present in 16 of the fatal cases and absent in 2 Spasm causes muscle tissue to contract and shorten and in this way the condition has an effect on respiration Spasm of the chest muscles was either a serious cause or a contributing factor to the breathing difficulty in 38 of the 43 patients with true respiratory disorders Breathing disturbances in poliomyelitis are not confined to patients showing paralysis Spasm of the intercostal muscles as well as of the abdominal and spinal muscles, can restrict breathing Spasm of the pectoral muscle is severely painful and inhibits breathing Spasm of the diaphragm causes an exhalatory type of difficulty in which the chest is expanded and the patient s eyes bulge on exhalation in his attempts to rid the lungs of the air The best treatment of muscle spasm is application of moist heat The mechanical respirator aggravates the spasm and makes treatment of the muscles difficult. Every effort should be made to continue treatment of the chest muscles of patients with paralysis in addition to spasm who must be placed in a respirator It may be possible to open the respirator at hourly intervals throughout the day and apply hot foments to the chest Paralysis of the chest sufficient to impair respiration was present in 12 of the 43 patients with true breathing disorders In 10 of the 12 paralytic patients muscle spasm was a factor contributing to the respiratory distress Chest muscle spasm was associated with bulbar poliomyelitis in 21 of the 73 bulbar cases in many of which spasm of the muscles of the neck was a complication

Archives of Physical Medicine, Chicago

31 1-60 (Jan) 1950

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Disability Evaluation E D McBride —p 35
What Every Physician Should Know About Hospital Practice of Physical Medicine and Rehabilitation W D Paul —p 44

Ultrasonics in Medicine —Nelson and his associates at the Mayo Clinic say that members of the medical profession in this country have made little attempt to study the applications of ultrasonics, although in Europe during the past ten years particularly in Germany and Austria, a number of physicians have been utilizing ultrasonics for both diagnostic and therapeutic purposes There are several reasons why the medical profession in the United States has taken this attitude (1) Investigators in this country who pioneered in ultrasonics became discouraged, because of certain inherent technical difficulties such as the measurement of intensity and the difficulty in obtaining reproducible data, (2) suitable ultrasonic equipment was difficult to obtain until recently and (3) the average physician had no desire to use an unproved method of treatment on his patients until sufficient experimental evidence had accumulated to show that such a trial was warranted On the basis of existing experimental evidence not enough is known concerning the physiologic effects of ultrasonics to recommend its use in the treatment of any human disease It is inadvisable to use ultrasonics in the treatment of conditions for which there are other proved methods of treatment and in which delay in instituting surgical, roentgen or radium therapy might prove fatal for the patient There is a great opportunity for fundamental research in ultrasonics in the medical laboratory

Arkansas Medical Society Journal, Fort Smith

46 123-138 (Dec.) 1949

Wire Sutures—Surgical Status and Technical Aspect G O Dean —p 123

46 139-152 (Jan) 1950

Diagnosis and Present Treatment of Pyogenic Meningitides W A. Reilly —p 139

California Medicine, San Francisco

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Cancer, New York

2 943-1122 (Nov) 1949

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*Id II Cases 19 to 35 Years Old S C Sommers T T Hertig and H Bengloff —p 957
*Id III Carcinoma in Situ A T Hertig S C Sommers and H Bengloff —p 964
*Terminal Bronchiolar of Alveolar Cell Cancer of Lung Report of 20 Cases R. R Smith K P Knudtson and W L Watson —p 972
*Histological Study of 5 Minute Pulmonary Neoplasms Believed to Represent Early Bronchogenic Carcinoma A B Petersen W C Hunter and V D Sneeden —p 991
Carcinoid Tumors—Re Emphasis of Their Malignant Nature Review of 140 Cases C M Pearson and P J Fitzgerald —p 1005
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Nitrogen Mustards Statistical Analysis of Effects on Sarcoma 180 and Viscera of Normal Mice in Relation to Toxicity and Structure B H Landing and F F Eisenberg —p 1083
Preliminary Studies on Clinical Toxicity of 5 Amino-7 Hydroxy 1 v Triazolo[d] Pyrimidine (Guanazolo) G C Armistead Jr J H Burchenal D A Karnofsky and C M Southam —p 1087
Labeled Inorganic Sulfate in Diagnosis of Cartilaginous Tumors and Their Metastases L L Layton —p 1089

Genesis of Endometrial Carcinoma —Hertig and associates analyzed 500 cases of endometrial cancer A group of 389 intensively studied cases, seen during the twenty-year period 1929 through 1948, yielded 32 cases in which there had been a curettage or other pelvic operation one year or more before the first diagnosis of carcinoma In some the original histologic specimen was available for study Those taken fifteen or more years before the recognition of cancer were negative, while most biopsies made at shorter intervals were abnormal Endometrial polyps and cystic hyperplasia were met most frequently six to thirteen years before the diagnosis of cancer was made Adenomatous hyperplasia and anaplasia were most common three to five years before cancer Carcinoma in situ of the endometrium was observed most often three to five years before the diagnosis of invasive carcinoma Evidence is presented suggesting pituitary-ovarian dysfunction in these patients with endometrial carcinomas Excessive estrogen stimulation of the endometrium followed by prolonged, excessive, anterior-pituitary stimulation of the endometrium and the ovary are correlated with the successive morphologic changes ending in endometrial carcinoma The second of the three papers reviews 30 previously reported cases of endometrial carcinoma occurring in adolescence and youth and reports 16 new patients aged 19 to 35 years Menorrhagia, sterility, amenorrhea and obesity were frequently observed in this group, and their earlier endometrial biopsies showed polyps, cystic and adenomatous hyperplasia, anaplasia or carcinoma in situ Four had been treated with radium for dysfunctional bleeding Examination of the ovaries in some of these patients showed that 3 had ovarian cortical stromal hyperplasia, 4 had cortical fibrosis with underlying follicular cysts and 2 had cortical fibrosis with luteinization of theca-interna cells These ovarian changes and other endocrine stigmas suggest that the anterior pituitary, adrenal cortex and ovary participate in the hormonal imbalances which play a part in the genesis of endometrial carcinoma In the third paper, the authors present a concept of the earliest, noninvasive stage of endometrial cancer, termed carcinoma in situ Foci of glands formed of large eosinophilic cells with pale nuclei represent endometrial carcinoma in situ, as shown by 6 patients in whom invasive fundus carcinoma developed one to eleven years later, 8 patients with coexistent carcinoma in situ and invasion, and 14 cases in which endometrial polyps showed the pattern of carcinoma in situ Practically all the patients had irregular bleeding The mean age was 49 years Eleven patients had previous biopsies that indicated a background of endometrial polyps, cystic and adenomatous hyperplasia and anaplasia

Terminal Bronchiolar Cancer of the Lung—Smith, Knudtson and Watson are of the opinion that most cancers of the lung are epidermoid in character, a few are adenocarcinomas of mucous origin and a small number are anaplastic epidermoid cancers of the oat-cell type There is a small group of carcinomas of the lung that in the past were classified under a variety of names, such as alveolar cell carcinoma, carcinomatoides alveologenica multicentrica, malignant adenomatosis, pulmonary adenomatosis, diffuse alveolar cell carcinoma, carcinosis of the lung and terminal bronchiolar carcinoma of the lung The authors present clinical and histologic studies on 20 cases of terminal bronchiolar carcinoma found in reviewing all the cancers of the lung at Memorial Hospital, New York during the past twenty years Chest pain and cough were the most common presenting symptoms Three cases were asymptomatic and were recognized on routine roentgenographic study of the chest Diagnosis in most instances was made by aspiration biopsy of the mass either at the time of exploratory thoracotomy or preoperatively under fluoroscopic control and in 5 instances by examination of sputum and bronchial washings Two thirds of the patients had the nodular type of lesion and one third the diffuse form Cytologically these two forms are identical, The only effective treatment is surgical excision Two of the 9 patients in whom surgical intervention was attempted are alive and well five years, 1 had a lobectomy and 1 a simple excision of the mass Both were early cases Five patients with more extensive disease required a pneumonectomy Three died, and 2 are alive and well seventeen and three months after surgical operation Another means of treatment that requires more study and trial is a combination of surgery and irradiation The authors mention similarities between terminal bronchiolar cancer, the so-called pulmonary adenomatosis, the occupational lung cancer in the uranium miners of the Erz Mountains of Central Europe, jaagsiekte in sheep and experimental cancers elicited in animals by urethane, dibenzanthracene and other carcinogens

Minute Early Bronchogenic Carcinoma—Petersen and his associates studied 5 examples of minute pulmonary growths accidentally discovered in routine autopsy sections All 5 involved small bronchi In some instances it was possible to obtain serial sections of the portion of the tumor in the original block Although it proved difficult to demonstrate definitely that the growths originated from bronchial epithelium, evidence favors bronchial epithelium rather than alveolar cells Two of the subjects had had carcinoma of the colon, one of these lesions had metastasized to regional lymph nodes A third person had a small and well encapsulated renal adenoma The minute growths in the lung probably represent metastases from any of these The cell structure of the pulmonary growths was uniform not only in these cases but in 2 additional cases without neoplasms elsewhere than in the lung Although it was not possible to establish the exact point of departure of the growths, all gave evidence of an ability to invade bronchial walls and to spread into nearby air alveoli In 1 instance there was evidence of permeation of local lymphatic vessels The lesions are regarded as carcinomatous rather than mere foci of metaplasia or so-called bronchial adenomas

Geriatrics, Minneapolis

4 333-384 (Nov-Dec) 1949

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Journal of Applied Physiology, Washington, D C

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Hemoglobin Concentration and Physical Fitness H Cullumbine. —p 274
Relationship Between Resting Pulse Rate, Blood Pressure and Physical Fitness H Cullumbine—p 278

Industrial Efficiency and Food Intake—Haldi and Wynn attempted to determine whether the efficiency of a worker might be related to the kind and amount of food eaten in the midmorning and midafternoon rest periods The experiments were conducted in the sewing room of a cotton bag factory The subjects were women who worked at top speed continuously throughout the working hours on electrically driven sewing machines They had volunteered to serve as subjects after they had been told that the investigators were studying certain aspects of nutritional problems The precise nature of the experiment was not revealed For three consecutive weeks one of four refreshments was served each day during the midmorning and midafternoon rest periods It was estimated that the caloric yield of the four refreshments was approximately 650, 350, 150 and 80 calories These experiments demonstrated that in this type of work efficiency is not affected by the amount or kind of food eaten during the midmorning and midafternoon rest periods The energy reserves derived from the usual meals appear to be sufficient for the day's work It should not be concluded that refreshment for workers during the morning and afternoon rest periods is of no importance On the days when no food was eaten during the rest periods there was no impairment in work output, but the workers were not pleased Other investigators have found that the productivity of industrial workers may be adversely affected by unfavorable psychologic states It is possible that a resentful frame of mind might be engendered either by denying the workers access to food and beverages or by an attempt toward regimentation in the matter of what they should eat or drink

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Surgical Treatment of Carcinoma of Thyroid Gland B M Black —p 1422

Testosterone for Metastases from Cancer of Breast — Preston and his associates gave testosterone propionate to 17 women who had carcinoma of the breast that had metastasized to the bones Treatment was continued for five and one half to seventy-eight weeks Masculinization occurred in all patients Regression of bone metastases was observed in 4 patients These women showed ability to tolerate the drug in large doses for long periods of time. Osteoplastic metastases were observed to decalcify and osteolytic metastases were observed to recalcify Complete disappearance of bone metastases roentgenologically was observed in 2 instances The serum calcium levels remained within normal limits in 14 of 17 patients given large doses of androgens In 3 patients the bone metastases were accompanied with hypercalcemia and these patients tolerated androgen therapy poorly, suggesting that in hypercalcemia use of androgens is contraindicated Twelve of 14 patients with painful metastases obtained relief for periods varying from one to eighteen months Some patients continue to experience relief of pain from bone metastases even though there is roentgenologic evidence that the metastases are progressing Although 12 of the 17 patients died of their disease, worth while palliation was afforded to all but 5

Intraoral Desoxycorticosterone Acetate in Addison's Disease —Anderson and her associates used desoxycorticosterone dissolved in propylene glycol and alcohol and administered in drops under the tongue. The sublingual administration had certain advantages over the intramuscular injections or pellet implantation of the hormone, although some patients objected to the taste of the propylene glycol and alcohol Meticulous care had to be used in the handling and administration of the solution, otherwise the effectiveness of the therapy was lost These difficulties have been overcome by employing as the solvent a polyethylene glycol wax, a polymer which is a solid at body temperature, so that the desoxycorticosterone acetate can be used in tablet form Fourteen patients with Addison s disease were well maintained by intraoral administration of the hormonal tablets for eighteen months to two years The average daily requirement of the drug was 4.5 mg There was no evidence of toxicity from the polyethylene glycol wax which was used as the vehicle for the hormone.

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*Angiocardiography and Aortography in Diagnosis of Congenital Cardiovascular Lesions T H Burford M J Carson and W G Scott —p 860

Role of Angiocardiography and Venography in Mediastinal and Paramediastinal Lesions O A Abbott, W A Hopkins and T F Leigh —p 869

Intracavity Suction for Bullous Emphysema —Head and Avery treated 9 male patients with bullous emphysema of the lung by intracavitary suction The majority of complaints were referable to chronic bronchitis or asthma which is associated with emphysematous changes The presence of a large air space essentially nonfunctional can cause dyspnea and cyanosis by replacing space normally occupied by functioning lung tissue The total capacity and the vital capacity are reduced Blebs and bullae appear on a roentgenogram as areas of decreased density or increased brilliancy Several oblique and lateral views should be taken in cases in which bullae or blebs are suggested, because the routine roentgenogram of the chest often fails to reveal emphysematous cavities, particularly at the base of the lung Surgical treatment may be directed toward release of pressure and reversal of the check valve mechanism by drainage closure of the bronchial communications or excision of the diseased portions of the lung Intracavitary suction drainage is the procedure of choice in most cases An extrapleural exploratory operation was done with the patient under local anesthesia to determine whether or not there was pleural symphysis A free pleural space was observed in all of the authors patients making it necessary to produce adhesions with gauze packing The gauze pack was removed as a second stage procedure, and the wound was allowed to heal A multiple fenestrated catheter was then placed well into the cavity Reexpansion of the lung occurred usually in one to three weeks The catheter was allowed to remain in place an additional few days to cause inflammatory obliteration of the space Gratifying results were obtained in 8 patients The vicious cycle of events causing a check valve tension cavity was broken by substituting a gentle, physiologic, negative *pressure which allows the* reexpansion of surrounding, compressed, atelectatic lung The catheter acts as a foreign body causing effusion and inflammatory closure of the bronchial fistulas Intracavitary suction drainage did not give satisfactory results in epithelially lined cysts, which may be better treated by excision Careful thoracoscopic examinations should be performed and biopsies made before the ultimate type of therapy is decided

Surgery of Pulmonary Stenosis—Holman operated on 38 patients with cyanosis Thoracotomy without anastomosis was performed on 7, 5 of whom died These fatalities are explained on the basis of an increased deflection of unaerated blood into the systemic circulation through the interventricular septal defect due to the increased peripheral resistance in the pulmonary vascular bed incident to anesthesia and to the opening of the chest A systemic artery was joined to the pulmonary artery, as proposed by Blalock in 29 patients In 2 of these the innominate artery was joined to the pulmonary artery with excellent results, in 1, the right common carotid artery was united with the right pulmonary artery, causing a temporary left hemiplegia in 3, the right subclavian artery was joined to the right pulmonary artery with 1 death in a patient aged 19 months and with 2 excellent results The left subclavian artery was joined to the left pulmonary artery in the remaining 23 patients 2 of whom died and 21 of whom obtained good to excellent results In 4 patients the left pulmonary artery was completely divided proximal to the anastomosis because of sharp angulation at the origin of the subclavian artery, which prevented free flow of blood through the anastomosis After such division the distal pulmonary artery rose in position in the chest, the angulation was corrected and a good flow through the anastomosis occurred The left subclavian artery may be preferred to the right because of its greater length, if angulation at its origin occurs after its anastomosis, this can be corrected by complete division of the pulmonary artery proximal to the end to side anastomosis The Potts technic of direct anastomosis between pulmonary artery and the arch of the aorta was performed on 2 patients each aged 9 months, excellent results were obtained in 1 but death occurred in the other

Diagnosis of Congenital Cardiovascular Lesions—Burford and co workers did eighty-six serial contrast visualizations of the cardiac chambers and great vessels in patients with congenital cardiovascular lesions Rapid intravenous injection of 40 to 50 cc of the dye was made in adults, and proportionately lesser amounts were administered to children and infants Rapid serialization of roentgen ray exposures was obtained by the full automatization of the equipment, using an improved model of the tautograph called rapidograph Sixty-three visualizations were intravenous angiocardiograms and twenty-three were retrograde aortograms Decisive information was gained by this method in cases of coarctation of the aorta, patent ductus arteriosus, aortic arch anomalies and aneurysm In cases of coarctation not only was the diagnosis made but the site and type, which are of greatest value in preoperative planning were delineated Retrograde visualization was decisive in the infrequent but important borderline cases of patent ductus arteriosus The simultaneous opacification of aorta and pulmonary artery or the actual demonstration of the ductus constitute irrefutable evidence of patency Absence of these evidences of shunt exclude the existence of a patent ductus Aortic arch anomalies can be outlined even to the extent of showing the two limbs of the "aortic" ring In aneurysms that are filled with clot, there is enough suggestive evidence in the aortogram to make the diagnosis There were no deaths or untoward reactions ascribable to the dye or to the method There were no complications attributable to the use of the carotid artery in the retrograde group Angiocardiography is not to be recommended in every case of congenital cardiovascular heart disease, because it is a method not without some potential hazard Angiocardiography and retrograde aortography when properly done offer a reasonably simple, safe and accurate method of diagnosis, applicable to all age groups, in the all important borderline group

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*Medical Follow Up of Vagotomy Plus Gastro Enterostomy or Pyloroplasty for Peptic Ulcer E N Collins, G Crile Jr and W S Dempsey—p 33
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Vagotomy Plus Gastroenterostomy or Pyloroplasty for Peptic Ulcer—Collins, Crile and Dempsey say that during the past three years and three months 360 patients have been subjected to bilateral vagotomy for complicated peptic ulcer at Cleveland Clinic Hospital The transabdominal approach plus gastroenterostomy or pyloroplasty was adopted as the procedure of choice Of the first 100 consecutive cases, which are reviewed in this paper, 73 required bilateral vagotomy plus gastro enterostomy and 27, bilateral vagotomy plus pyloroplasty The authors found that it is difficult to appraise the results of treatment in a disease characterized by spontaneous remissions Experience of many years is necessary for the final evaluation of any treatment of peptic ulcer The authors are conservative in advising surgical procedures, because at least 85 per cent of their patients with duodenal ulcer make satisfactory progress on medical management They were able to follow 95 of the 100 patients for an average of twenty months The patients in this group obtained better results than a comparable series of patients having conventional surgical treatment, followed over a similar period of time The mortality rate was 1 per cent In 1 patient there developed a jejunal ulcer with obstruction It apparently was impossible to perform a total vagotomy in this instance Otherwise, no patient in this series showed roentgen evidence of recurrent ulcer and no patient had a recurrence of obstruction hemorrhage or perforation The authors favor bilateral vagotomy plus gastroenterostomy or pyloroplasty in complicated duodenal ulcer

Pediatrics, Springfield, Ill

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Early Treatment of Metatarsus Varus (Adductus) A B Sirbu and B Colloff —p 810

Vitamin B_{12} in Megaloblastic Anemia —Woodruff and co workers treated 2 infant boys aged 17 months and 9 months and 1 infant girl aged 1 year who had megaloblastic anemia with vitamin B_{12} The first patient was given 0 025 mg of vitamin B_{12} intramuscularly after three blood transfusions totaling 340 cc of whole blood The second patient was given 0 025 mg of vitamin B_{12} subcutaneously but no blood transfusions The third patient received 30 micrograms of vitamin B_{12} parenterally in divided doses on three days and was given a series of whole blood transfusions totaling 350 cc. The hematologic response of the first 2 of these patients to vitamin B_{12} was in all respects comparable to that obtained with folic acid or liver extracts Both patients responded with a reticulocytosis followed by a prompt increase in circulating blood elements There was definite clinical improvement characterized by a greatly increased appetite and a willingness to take all kinds of foods, disappearance of apathetic attitude and increase in activity The response of these 2 infants was typical of a remission induced by an active hemopoietic agent The interpretation of a specific response to vitamin B_{12} was complicated by the possible effect of the initial transfusion given to the first patient, but the second patient did not receive such supportive treatment In view of the similarity of the courses of the 2 infants, it would seem that both remissions were due to the administered vitamin B_{12} The agent failed to induce a remission in the third patient who subsequently responded to pteroylglutamic acid (folic acid) Megaloblastic anemia of infancy is possibly not a single entity but a syndrome some cases of which may respond to one of the newer hemopoietic vitamins while other cases respond to another The relationship between these two factors is obscure

Double Aortic Arch —Griswold and Young report that a male infant aged 5 weeks and a girl aged 20 years demonstrated two types of double aortic arch The first case was a relatively common type the infant had a large right arch with a retroesophageal component and a left descending aorta The second case was a rare type of tetralogy of Fallot in association with a double aortic arch The larger left component of the arch passed behind the esophagus and joined the smaller right aortic arch to form a right descending aorta The infant had symptoms of constriction, but the adult patient had no symptoms referable to the anomaly Analysis of these 2 cases and of 47 other cases reported in the literature reveals that there is a striking correlation between the occurrence of symptoms and the age and duration of life, but there is no correlation between the occurrence of symptoms and the type of double aortic arch When a double aortic arch causes symptoms of constriction, these symptoms will develop during the first two years of life A double aortic arch is more likely to produce symptoms when both components are patent throughout than when one component is partially obliterated The process of obliteration does not appear to give rise to symptoms There is considerable variation in the relative sizes of the components of a double aortic arch. The right component is usually the larger, part of the left component may be obliterated To date, no case has been reported of obliteration of part of a persistent right component A double aortic arch occurs more commonly with a left descending aorta than with a right descending aorta It is unusual for a double aortic arch to be associated with a malformation of the heart. The association of a double aortic arch with other vascular abnormalities is less rare. Operation is indicated only in patients who manifest serious symptoms such as stridor or dysphagia The mortality rate of operation is high—2 of 7 patients have died In neither instance of unsuccessful operation was the vascular ring divided The immediate prognosis is good for those patients in whom one component of a double aortic arch has been divided It is still too early to determine the ultimate outcome. Exploratory thoracotomy without division of the ring has proved dangerous Operation should not be undertaken unless it is justified by severity of the symptoms

Quarterly J of Studies on Alcohol, New Haven, Conn

10 381-564 (Dec) 1949

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Effect of Altitude on Alcohol Tolerance —According to Newman there is a widespread belief among aviators that a dose of alcohol which will not produce symptoms of intoxication at sea level will do so at high altitudes Since certain air lines serve alcoholic beverages aloft, and since it is reasonable to assume that some air passengers may drink before embarking knowledge of the possible effect of altitude on alcohol tolerance seemed desirable The subjects in the present study were members of the staff and student body of the medical school of Stanford University, all males in good physical condition and more or less accustomed to the social use of alcoholic beverages but none who could be classed as excessive drinkers The results of the experiments on these subjects indicate that the intoxicating effect of alcohol can be enhanced by a lowered oxygen tension If one subscribes to the theory that the effect of alcohol on the nervous system is due to a histotoxic anoxia then it seems reasonable that the addition of some degree of anoxic anoxia would produce an additive effect It has been clearly demonstrated that an alcohol concentration in the blood which is incapable of producing measurable signs of intoxication when one is at sea level may produce such signs at an altitude of 18,000 feet Further work is indicated to ascertain the effect of lesser altitudes on alcohol tolerance The fact that in 2 of the 5 subjects tested an altitude of even 18 000 feet was ineffective in lowering tolerance to alcohol suggests that lower altitudes would probably not produce effects demonstrable with this technic Since altitudes of 18 000 feet are seldom encountered on commercial flights, except in aircraft with pressurized cabins it seems unlikely that the reduced oxygen tension ordinarily encountered in passenger aircraft would significantly reduce tolerance to alcohol in most persons

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted Single case reports and trials of new drugs are usually omitted

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British Medical Journal, London

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Trilene Analgesia in Paediatric Practice J Thomson, D A I Grewar and J G Grounds —p 1449
Leucotomy and Hypertension Case Report R W Tibbetts —p 1452

The Short Esophagus —Rennie, Land and Scott Park say that although the association of gastric hernia with shortening of the esophagus is not a new concept, it is far from widely appreciated that it can produce a variety of symptoms simulating carcinoma of the esophagus, peptic ulceration of stomach or duodenum, cholelithiasis and even disease of the coronary arteries Of 139 patients complaining of dysphagia due to obstruction in the lower third of the esophagus 80 had carcinoma, achalasia was the cause in 31, and short esophagus with benign stricture or active esophageal ulcer in 26 The authors describe the clinical features of 31 patients with hiatus hernia and short esophagus who were admitted to the Western Infirmary, Glasgow, over a period of ten years The sex incidence of short esophagus showed a preponderance of females in a ratio of 2 1 (21 women and 10 men) Difficulty in swallowing solid food was experienced by 26 patients, and 21 regurgitated food Hematemesis occurred in 9 If the patient with short esophagus is given barium while standing, the roentgen picture usually shows a partial stricture with irregular wall some distance above the diaphragm, the appearance resembling that of carcinoma If the patient is tilted in order to allow the barium to flow back into the esophagus the existence of a portion of the stomach above the diaphragm becomes apparent It is also sometimes necessary to increase the intra-abdominal pressure by compressing the abdomen or by instructing the patient to strain In this series of 31 cases of short esophagus and thoracic stomach a partial stricture of the esophagus was present in 26 Thus 5 patients had a short esophagus and a thoracic stomach without stricture, though subsequently a stricture did develop in 2 Carcinoma was found in the thoracic part of the stomach once, and simple ulcer once In only 3 instances of short esophagus and thoracic stomach did persistent dysphagia appear first after operation In 5 of the present series the esophageal symptoms began during the later months of pregnancy All 5 women were over 35 years of age A rise in intra-abdominal pressure during pregnancy is probably a factor in these cases The authors believe that congenital or "acquired" weakness of the esophageal ring is common, allowing of a small sliding hiatus hernia without symptoms

Journal of Bone and Joint Surgery, London

31-B 497-658 (Nov) 1949

*Natural History and Treatment of Pulp Space Infection and Osteomyelitis of Terminal Phalanx H Bolton, P J Fowler and R P Jepson —p 499
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Excision of Carpal Scaphoid for Ununited Fracture F C Dwyer —p 572
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Treatment of Pulp Space Infection —Bolton and his co-workers maintain that infection of the pulp space occurs with much greater frequency than more serious infections of the palmar space of tendon sheaths, and it may cause prolonged incapacity The micro-organism concerned is usually Staphylococcus aureus, but in no more than half the patients is there a history of injury It is possible that the staphylococcus enters by way of the sweat or sebaceous glands The inflammatory reaction causes cellulitis, which at first is confined by the tough fibrous septums that break up the pulp space into tiny compartments and are tightly adherent to skin and periosteum The cellulitis causes pain which is described as "tight" or "prickling" At this stage the infection may resolve spontaneously, but the number of such abortive cases is unknown, because many never come to hospital Some physicians advocate conservative, or nonincisional, treatment of pulp space infections, but the authors believe that this is possible only before pus is localized They stress that every one of the 50 patients in this series had at the time of incision a localized collection of pus which demanded evacuation They have abandoned lateral J incisions and bilateral linear incisions, becaues these traverse uninfected tissue, fail to maintain drainage of the abscess and may cause injury to the digital nerves with resulting causalgia A small incision accurately localized over the site of the abscess accelerates the time of healing, minimizes pain, edema and discharge avoids injury to the digital nerves and does not cause persisting tenderness even when the scar is in the tactile pad Several of the patients were typists, and despite the use by the authors of a central incision for drainage, the typists were able to resume work within three weeks

Quarterly Journal of Medicine, Oxford

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*Idiopathic Thrombocytopenic Purpura H N Robson —p 279
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Syndrome of Hypopituitarism H L. Sheehan and V K Summers —p 319
Genetic and Environmental Factors in Congenital Heart Disease M Campbell —p 379

Idiopathic Thrombopenic Purpura —Robson points out that the precise nature of the defect underlying the bleeding tendency in idiopathic thrombopenic purpura is imperfectly understood He investigated 19 cases of idiopathic thrombopenic purpura with regard to changes in bleeding time, capillary resistance and platelet counts before, during and after splenectomy He made similar observations on a control series of 13 patients, on whom splenectomy was performed for other conditions, and 7 patients undergoing other abdominal operations The megakaryocytes in the bone marrow were studied before and after operation It was shown that splenectomy in cases of idiopathic thrombopenic purpura is associated with a sequence of changes in bleeding time capillary resistance and platelet counts The results of observations on the control groups indicate that these changes are brought about initially by a nonspecific effect of operative intervention, followed by the effect of removal of the spleen itself In cases of idiopathic thrombopenic purpura the final effects of splenectomy cannot be assessed until at least three months after operation It is suggested that the cause of idiopathic thrombopenic purpura lies in the production by the spleen and other reticuloendothelial tissue of some factor which alters the state of capillaries and also reduces platelet formation from megakaryocytes Removal of the spleen may bring about a complete or partial reversal of these changes

South African Medical Journal, Cape Town

23 955-970 (Nov 26) 1949 **Partial Index**

Epitrochlear Adenopathy in Bantu I Chanarin —p 960
Whooping Cough Pyribenzamine in Its Symptomatic Treatment I Helman —p 962

Tripelennamine for Symptomatic Treatment of Whooping Cough —After prescribing elixir of tripelennamine (pyribenzamine®) hydrochloride (1 teaspoonful three times a day) for a child aged 2 years, who had angioneurotic edema and whooping cough, Helman found that not only did the angioneurotic edema subside but there was also a decided improvement in the whooping cough The spasms were reduced in frequency and intensity He decided to try tripelennamine in other severe cases of whooping cough Four children were given elixir of tripelennamine three times a day, and the whoop was greatly reduced in intensity and frequency The improvement persisted as long as medication with the drug was continued The symptoms returned on cessation of therapy, but subsided again when the drug was readministered No complications were caused by the tripelennamine Drowsiness was common but this is a useful state in whooping cough The impression gained from these cases is that although the drug did not shorten the duration of the disease it did reduce the frequency and intensity of the spasms

Acta Physiologica Scandinavica, Stockholm

19 1-94 (Nov 25) 1949 **Partial Index**

Effect of Transection of Hypophysial Stalk on Mammary Glands of Lactating Rabbits D Jacobsohn —p 10
Distinction by Means of Tracers Between Active Transport and Diffusion Transfer of Iodide Across Isolated Frog Skin H H Ussing —p 43
Calculation of Cardiac Output by Estimation with Dilution Method. K Cyrin —p 57
Pressor Reflex from Peripheral Vagus Nerve C von Euler —p 62
Histamine as Specific Constituent of Certain Autonomic Nerve Fibers U S von Euler —p 85

Histamine as a Constituent of Nerve Fibers —Von Euler studied the distribution of histamine in the central nervous system and in nerves chiefly of cattle Nerves were dissected out within an hour after death, finely cut and extracted with 5 or 10 per cent trichloroacetic acid The trichloroacetic acid gave a 30 to 100 per cent higher yield than acid alcohol Histamine was a constant ingredient in extracts of central nervous system and of peripheral nerves, though the relative amounts varied greatly The highest amounts equivalent to some 60 to 100 micrograms of histamine dihydrochloride per gram, were found in nerves containing postganglionic sympathetic fibers such as the splenic, the splanchnic and the mesenteric nerves The central nervous system and the spinal roots contained the lowest amounts Nerves including preganglionic autonomic fibers, like some cerebral nerves, contained intermediate amounts The specific distribution of histamine indicates the presence of a special histaminergic system anatomically associated with the sympathetic system The role of the histaminic nerves is tentatively correlated to secretory and smooth muscle regulating functions

Geburtshilfe und Frauenheilkunde, Stuttgart

9 873-944 (Dec.) 1949 **Partial Index**

Limits and Possibilities of Surgical Therapy of Cervical Cancer J Amreich.—p 873
Development of Abdominal Extirpation of Freund (1878) into Radical Operation of Wertheim (1898) R. Elert.—p 887
Question of Relation Between Ectopic Implantation of Ovum and Its Pathologic Development. G Hormann —p 901
Use of Neostigmine in Diagnosis of Pregnancy and Therapy of Amenorrhea R Kohler —p 927
*Question of Cesarean Section in Mothers with History of Erythroblastotic Infants D Klebanow and E Mayr —p 931
*Critical Evaluation of Premature Cesarean Section in Suspected Fetal Erythroblastosis H Hocks —p 936

Cesarian Section on Account of History of Erythroblastosis Fetalis —Klebanow and Mayr report on 3 Rh women on whom cesarian sections were performed In one of these women the operation was done only on the basis of history of a previous birth of an erythroblastotic infant, while in the other 2 the operation was performed because of the presence of blocking antibodies In these 2 women the cesarian section plus exchange transfusion were completely successful, whereas in the first woman the further development of the infant revealed psychic and somatic disturbances indicative of kernicterus

Critical Evaluation of Cesarean Section in Erythroblastosis Fetalis —Hocks is concerned with the indications for premature cesarean section in cases of suspected erythroblastosis fetalis He stresses the difficulty of a reliable diagnosis before delivery, pointing out that an Rh-negative mother, an Rh-positive father and the presence of Rh antibodies in the serum of the mother do not represent absolute proof that the infant will have erythroblastosis The author believes that a cesarean section before term is justified only if, in addition to the aforementioned factors, the mother has a history of other deliveries resulting in infants with erythroblastosis fetalis and when her serum shows a high titer of blocking not merely agglutinating antibodies Cesarean section should be performed in such circumstances about three weeks before term, and preparations should be made to perform an exchange transfusion immediately after delivery, if necessary The author reports a case in which a cesarean section was performed in the presence of the aforementioned factors two weeks before term and the infant proved to be healthy and free of signs of erythroblastosis He assumes that in this case in which the mother had a history of two previous deliveries of erythroblastotic infants and a high serum titer of antibodies the placenta became permeable for an increased transfer of antibodies into the fetal circulation only during the last few weeks of pregnancy or perhaps only as the result of the uterine contractions The author regards cesarean section before term as justified and advisable in similar cases

Memórias do Instituto Oswaldo Cruz, Rio de Janeiro

46 661-812 (Dec) 1948 **Partial Index**

*Acute Myocarditis in American Trypanosomiasis C Torres and E Duarte —p 759

Acute Trypanosomal Myocarditis —Torres and Duarte report a child, 5 years old, with acute myocarditis caused by the American Trypanosomal infection The electrocardiograms showed changes similar to those of anemic infarct in the region supplied by the left coronary artery The child died on the twenty second day of the illness The autopsy revealed acute diffuse trypanosomal myocarditis, trypanosomal encephalitis trypanosomal invasion of the right posterior auricular node, tuberculosis of the bronchial and pulmonary lymph nodes chronic passive hyperemia and atelectasis of the lungs, chronic passive congestion and hemorrhages in the spleen serous hepatitis, parotiditis, bilateral hydrothorax hydropericardium and hydroperitoneum Clumps of Trypanosoma cruzi observed in the myocardium presented three morphologic characteristics (1) predominant or only leishmania, (2) flagella and (3) pre flagella forms which were similar to Toxoplasma Many small sensory nerves in the epicardium showed mononuclear infiltration of the perineurium Microscopically there was extensive Zenker s degeneration with invasion of the heart muscle fibers extensive cellular infiltration of the interstitial connective tissue of the heart muscles and of the Tawara node, main bundle and right and left septal divisions of the bundle of His These anatomic changes were regarded as the cause of the abnormal electrocardiogram

Nordisk Medicin, Stockholm

42 1917-1948 (Dec 16) 1949 Partial Index

*Mongolism and Heredity G V Bredmose—p 1923
Rectal Basal Narcosis with Thiopental Sodium E Nilssen—p 1927
Menstrual Disturbances in Tuberculosis T Hølund—p 1929
Treatment with Dicumarol (Synparin') in Small Continuous Doses L. Epstein and A Nørholm Pedersen—p 1930
Contact Dermatitis Due to Streptomycin E Thamdrup—p 1934
Submucous Lipoma of Colon A Claussen—p 1936

Mongolism and Heredity—Bredmose says that his genetic research in families with cases of mongolism and families with other forms of mental deficiency, 204 families in all, reveals surprisingly many cases of schizophrenia and manic-depressive psychoses in the former in comparison with the other groups The frequency of epilepsy was remarkably low in the mongolism families though greater than normal, the number of cases of abortion seemed to be the same as in the other groups, but there were far more cases of stillbirth and deaf-mutism

Revista Cubana de Pediatría, Havana

21 633-692 (Nov) 1949 Partial Index

Hurler s Disease Cases in Brother and Sister F Hurtado L Exposito and A de Feria—p 633

Hurler's Disease—According to Hurtado and collaborators Hurler s disease (lipochondrodystrophy) is a rare congenital and familial disease characterized by dwarfism, skeletal deformities, a large head with grotesque dwarflike face, clouding of the cornea kyphosis stiffness of the joints, flexed hands, hepatomegaly, splenomegaly and in most cases, mental deficiency The disease seems to be due to a disorder of the germinal plasma transmitted in accordance to mendelian law The clinical diagnosis is easy and is confirmed by the skeletal abnormalities and wide involvement of bones as shown by roentgen examination The prognosis is unfavorable The patients are fragile They frequently suffer from respiratory infections The majority of the patients have cardiac disease which terminates fatally The authors report 2 cases in a sister and a brother, 8 and 5 years old The parents were first cousins They were normal There was no syphilis, tuberculosis or alcoholism in the parents or their families Both patients had normal mentality for their age The girl died of sudden cardiac failure

Schweizerische medizinische Wochenschrift, Basel

79 1139-1170 (Dec 3) 1949 Partial Index

Physical Therapy in Combating Rheumatism A Boni—p 1139
Esophagoscopy H Iselin—p 1143
Interpretation of Coagulation Tests in Hemorrhagic Diathesis P de Nicola—p 1146
Some Considerations on Treatment of Alcoholism with Antabuse Symptomatology Dosage and Possible Dangers R Chapuis and H Solms—p 1149

Treatment of Alcoholism with Antabuse—Chapuis and Solms studied the effect of the ingestion of tetraethylthiuram disulfide (antabuse) and alcohol on 2 healthy persons and on 9 patients with chronic alcoholism, 2 of whom presented the Korsakoff syndrome The symptoms produced by 40 to 60 cc of 50 per cent alcohol within five to fifteen minutes after its ingestion following administration of 1 Gm of tetraethylthiuram disulfide, consisted of congestion of the face and neck, a sense of pressure and of pounding in the head, accelerated pulse and respiration, and a fall in the systolic and diastolic pressures, occasionally associated with dyspnea Some patients presented a temporary mild increase in the arterial tension Small doses of tetraethylthiuram disulfide capable of producing these symptoms are not adequate to suppress even temporarily the desire of the alcoholic addict to continue drinking Four of the 9 patients with chronic alcoholism, who were given 2 to 2 5 Gm of the compound, showed symptoms of vascular collapse with a considerable fall in the arterial tension down to a complete disappearance of the radial pulse, pallor of the face and cold sweat after the ingestion of 40 to 60 cc of 50 per cent alcohol The combined effect of tetraethylthiuram disulfide and alcohol consists in a temporary disturbance of the cardiac and the respiratory rhythm and vasomotor disturbances which usually develop in two successive stages, cerebral congestion and acute vascular collapse with cerebral anemia The polymorphism of the symptoms suggests that the point of impact of the toxic agent has its seat in the neurovegetative centers The effective dosage of the drug varies considerably with the individual patient These individual variations make it indispensable that the dose be determined in a hospital, treatment may later be continued on an outpatient basis Maximum discomfort and the avoidance of hazards should dominate the treatment Respiratory insufficiency and cardiovascular disorders are contraindications to the treatment Simultaneous or successive treatment with apomorphine hydrochloride and tetraethylthiuram disulfide is advisable The latter as an auxiliary agent may be given to alcoholic patients of good will, whose addiction is not of long duration and whose mental status has not undergone severe changes Psychotherapy occupies the first place in the treatment

Wiener klinische Wochenschrift, Vienna

61 815-830 (Nov 25) 1949 Partial Index

Brain Abscess L Schönbauer—p 815
Otogenous Brain Abscess E Schlander—p 816
Problem of Iron Metabolism in Acute Diseases of Liver Parenchyma L Benda and E Rissel—p 816
*Epidemic of Poliomyelitis in Bruck on Mur During 1947, Observations and Experiences C Radlinger—p 818

Epidemic of Poliomyelitis—Radlinger reports on 117 males and 99 females with poliomyelitis who were admitted to the hospital in Bruck an der Mur in Styria from June to September 1947 The epidemic reached its peak in July, which was the hottest month of the summer The peak of the epidemic coincided with the highest outdoor temperature, in contrast to other epidemics which reached their peak when outdoor temperatures were on the decline The summer of 1947 was unusually hot and dry, and the ground water reached an exceptionally low level It seems likely that poliomyelitis is influenced by weather conditions Two of the patients with paresis of the lower extremities came from mountain villages at about 3,700 feet altitude They had not left their villages for some time before they became infected, but their villages were situated at mountain passes, frequently used by tourists The virus was probably transmitted by healthy carriers The virulence of the virus does not seem to become impaired by high altitude Ninety-nine of the 216 patients (46 per cent) were children, and 59 of them were between the ages of 1 and 6 years The children were affected almost exclusively during the first weeks of the epidemic, but adult patients were in the great majority near the end of the epidemic The youngest patient was aged 3 months and the oldest 68 years Eighty-seven patients (40 per cent) were over 18 years of age The existence of a familial source of infection rather than a familial disposition to poliomyelitis is suggested by the fact that grandfather and grandchild were affected in one family, brothers and sisters in a second family and cousins in a third family Sore throat, enteritis and pain in joints or limbs preceded poliomyelitis in 20 per cent of the cases Several physicians reported many cases of influenza during the second half of July An influenza epidemic is not likely during a hot summer, and the fact that poliomyelitis in many instances followed immediately suggests that the preceding disease could be considered as the first reaction of the body to the invasion of the poliomyelitis virus One hundred and forty patients had the meningitic type and 76 the paralytic type, involving the bulbar region in 23 Many patients in the early stage of the disease had back pain radiating to various organs and to the extremities, but in the majority of cases the pain was not more intensive in those segments which later became affected by paresis Localization and type of back pain is not of prognostic value with respect to the spreading of the paresis The juvenile patients had a temperature up to 104 F for three to seven days Eleven patients, 8 males and 3 females, died Convalescent serum in doses of 50 to 100 cc should be administered as early as possible to prevent the occurrence of paralysis Blood transfusions (100 to 200 cc) are recommended and injections of aminophylline to support the serum therapy

Book Notices

THE REVIEWS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES AND DO NOT REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED

Arthritis and Allied Conditions. By the Late Bernard I. Comroe, M.D. Editor Joseph L. Hollander, M.D. Collaborating Editors Nathan R. Abrams, M.D. and others. Fourth edition. Cloth. Price, $16. Pp. 1108, with 370 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1949.

In 1940 Comroe, then a young physician working at the University of Pennsylvania Medical School produced the first edition of this textbook. Almost immediately after its appearance his book was recognized as the most useful and comprehensive treatise on the subject ever produced in this country. By virtue of its arrangement and character of material included, the work was especially well suited for study and reference. Within four years two additional revisions were published by this energetic author, and these new volumes were each larger and more inclusive than their predecessors. Comroe died in 1945, leaving this highly successful textbook as an outstanding memorial to his brilliant but tragically brief career.

It is gratifying to note that this valuable book is not to be allowed to become obsolete. Hollander, together with sixteen collaborating writers, has now completed the first rewriting and rearranging. In its present form the book is even more effective and more useful than its forerunners. Introductory chapters deal with general problems concerning classification, incidence and economic importance of rheumatic disease and with technics of physical and laboratory procedures peculiarly important for work in this field. Subsequent sections deal exhaustively with rheumatoid arthritis, osteoarthritis and the many additional diseases which are by custom, included among varieties of acute and chronic rheumatism.

Division of the work of rewriting among so large a group of authors has resulted in a certain amount of repetition, but this does not detract from the value of the book. Material included is in general up to date, readably stated and well organized. The method used by Comroe of outlining important diagnostic and treatment measures and of presenting these outlines in conveniently located boxed tables has been continued. The many chapters are admirably supplied with references which are, in general, carefully selected and accurately given. The new volume is profusely illustrated with excellent sketches and photographs.

A most important achievement of the new edition is correction of a fault which notably limited the value of the original editions, namely, a lack of critical and objective appraisal of therapeutic claims and controversial statements to which reference was made. In the present edition this defect has been largely overcome. Both the editor and publishers are to be congratulated on the general excellence of the book. This volume is a storehouse of reliable information on rheumatic diseases.

Das lange Becken. Geburtshilfliche Studie über das Assimilationsbecken. Von Prof. Dr. Heinz Kirchhoff, Chefarzt der Städt. Frauenklinik Lübeck. Cloth. Price, $6. Pp. 145, with 111 illustrations. [Grune & Straton, 381 4th Ave., New York 16.] Georg Thieme, Diemershaldenstrasse 47, Stuttgart O, 1949.

This monograph is a detailed study of the assimilation pelvis encountered in 212 patients in the University Clinics for Women at Kiel and Leipzig. The morphology, fetal and postnatal development of this pelvic type are considered. Its clinical significance in labor is discussed. Spontaneous deliveries occurred in 51.5 per cent of these women, forceps deliveries in 18.4 per cent, craniotomy in 4.2 per cent, version and extraction in 3.7 per cent, 22.2 per cent of the deliveries were by cesarean section. Thus, although the author has been conservative in the management of the labors, more than one in five had to be terminated abdominally.

The book is well written. It contains many excellent illustrations and roentgenograms. The bibliography is limited to German references with but one exception. It is a noteworthy contribution on this interesting subject.

The Official Preparations of Pharmacy. By Charles Oren Lee, Ph.D., Professor of Pharmacy, Purdue University School of Pharmacy, Lafayette, Indiana. Cloth. $5.50. Pp. 528, with 32 illustrations. The C. V. Mosby Company, 3207 Washington Boulevard, St. Louis 3, 1949.

This book discusses the problems associated with the manufacture of pharmaceutic preparations official in the 'United States Pharmacopeia XIII" and the "National Formulary VIII.' The various classes of official preparations comprise the 25 chapters of the text. Large classes of preparations usually constitute individual chapters while smaller classes of a related nature are grouped together in other chapters. Each class of preparations receives a general discussion including definitions, processes involved in manufacture and equipment used. Reference is frequently made to the general nature, mode of application and the use of individual preparations. A list of items in a given class follows the general discussion. These are listed alphabetically according to the official English title followed by the Latin title, synonyms and a definition or brief description of the item. Comments on the chemical and pharmaceutic problems involved in the manufacture and storage of the various items conclude the discussion of each class of preparations.

The subject matter is presented in a clear and concise fashion. Exception can be taken neither to the manner of presentation nor to the general format of the textbook. Although it is directed primarily to pharmacy students, it may find equal usefulness as an interpretative supplement to the official compendia for graduate practitioners of pharmacy.

More About Psychiatry. By Carl Binger, M.D. Cloth. $4. Pp. 201. The University of Chicago Press, 58th St. and Ellis Ave., Chicago 37; Cambridge University Press, Bentley House, 200 Euston Rd., London, N.W.1; W. J. Gage & Co., Ltd., Toronto 2B, 1949.

Dr. Binger writes easily and forcefully, his allusions and quotations bespeak his culture and wide reading. He has brought together fourteen papers, written for widely varied occasions, but all timely and related to his function as teacher and psychiatrist. These are fine essays from a rich background and good reading for any medical teacher.

He starts with "The Doctor's Dilemma," the conflict between medicine as a biologic science and medicine as a healing art. He shows why quackery sometimes succeeds where science fails and indicates what science can do about it. "Psychosomatic Medicine" is a clear ten page exposition of what this liaison field does and how it came into its present importance. "Mind and Heart" is a remarkably good exemplification of psychosomatic medicine at its best, psychiatric understanding applied to the common problems of the cardiologist. "Psychotherapy and Arterial Hypertension" is a similar, but less convincing excursion into an applied field.

As a teacher of medicine and psychiatry, Binger shows his ability to say things memorably in the chapters on "What Can We Learn from a Medical History," "Psychoanalysis" and "What is Mental Health." The reader is also urged to learn with the hapless medical student "Why the Professor Fell out of Bed." "The Concern of Psychiatry" and "Anxiety" are more clinical in content. "Medical Information and Misinformation" is an amusing and trenchant discussion of communication between the medical profession and the public. Binger takes a fling at the bad English of the physicians and a kick at the insidious "commercial plug." He ends with a plea for more honest professionalism on the part of lay writers and for the use of straightforward plain English on the part of medical writers.

The chapter "On Choosing a Mate" brings out many points on marriage and divorce, perhaps the most telling is that immaturity and a desire to be loved like a baby wrecks many a marriage. 'This infantile love is neither tender nor enduring. It cannot be. It is desperate, clinging, predatory, manipulative, and cares more about its own feelings than about the other person." The grown-up marriage is held together by love and mutual respect and not by outward pressure. "Nobody but an idiot would hope for perfect and constant happiness in a world such as this. Passing happy and even ecstatic moments, yes, perhaps, but comfort we can expect, and understanding and the feeling that you count enormously in another's life.'

The last two chapters, "New Partnerships for Psychiatry" and "The Last Best Hope of Earth," are concerned with the need for psychiatrists to take part in the social, political and economic life of their community and, ultimately, world citizenship "We medical and social scientists, who specialize in the study of man and his relations, must marshall all our knowledge and our best intelligence to grapple with the problem of how to prevent war"

Skin Grafting By James Barrett Brown, M D Professor of Clinical Surgery Washington University School of Medicine, St Louis Missouri, and Frank McDowell M D, Assistant Professor of Clinical Surgery Washington University School of Medicine Second edition Cloth $7 50 Pp 339, with 239 illustrations J B Lippincott Company, 227-231 S 6th St Philadelphia 5, Aldine House, 10-13 Bedford St, London, W C 2, 2083 Guy St, Montreal, 1949

Although this volume is labeled a "new second edition" it is actually a new and different volume which contains the best of the original edition and a considerable amount of new material which greatly enlarges its scope and adds definitely to its value Of equal importance is that the authors' wide experience with a large and varied group of cases enables them to speak with authority and definiteness concerning subjects that have caused sharp controversy and wide differences of opinion in the past particularly during the war years Chapters two, three and four on the early care of burns "tell the whole story in a logical direct and concise manner that is wholly admirable One wishes that the authors suggestions could be read and followed by every young (and older) surgeon who have patients with severe burns

Practically every chapter has been revised and enlarged and new material has been added to the chapters devoted to specific regions, particularly to the chapters on the extremities, the eyelids and orbit and the ears Brief but adequate discussions of a number of subjects, such as chemical burns electrical burns and plantar warts, have been added, along with an extensive chapter on radiation injuries and a beautifully illustrated chapter on skin grafting in military plastic surgery

One is constantly impressed with the authors' insistence on viewing the patient not simply as a technical problem but as a physiologic, pathologic and surgical problem and of considering not simply the immediate result but the lifetime outlook for the patient who has sustained a severe injury and loss of facial structures and surface tissues General surgeons and plastic surgeons will find this volume stimulating and helpful It should be in every surgeon s library

A Candle In Her Hand A Story of the Nursing Schools of Bellevue Hospital By Dorothy Giles Cloth $4 Pp 240 with 19 illustrations G P Putnam s Sons 2 West 45th St, New York 19, 1949

This book is the record of a group of courageous women interested in the improvement of the deplorable conditions existing in city hospitals at the close of the Civil War With Bellevue Hospital as the locale, the author presents a well documented story of the establishment of the first school of nursing in this country The birth pains of this institution, the maintenance and acceptance of the high ideals required of nurses and the effects of this pioneer achievement in improving the medical care of hospitalized patients make an interesting story that is recommended for nurses, intended nurses and anyone concerned with the history of medical progress

Medicine Volume II Diagnosis, Prevention, and Treatment By A E Clark-Kennedy, M D, F R C P, Physician to the London Hospital and Dean of the Medical School, London Cloth Price, $7 Pp 894 Williams & Wilkins Company, Mt Royal & Guilford Aves, Baltimore 2 1949

This and the first volume tend to describe the science and art of medicine as much as possible from a totalistic viewpoint Outstanding chapters of this volume deal with the reactions of the mind and general disturbances of functional nature A final chapter on practice of medicine describes the interrelationships of doctor and patient, families and society as a whole in an organized manner Comments on differing problems which arise at the several age levels are informative The final section of this chapter presents an interesting interpretation of life in the light of present day medical philosophy

Textbook of Medical Treatment By Various Authors Edited by D M Dunlop, B A M D F R C P Professor of Therapeutics and Clinical Medicine, University of Edinburgh, L S P Davidson B A M D F R C P, Physician H M The King in Scotland, and J W McNee D S O, D Sc, M D, Physician, H M The King in Scotland Fifth edition Cloth $8 50 Pp 999, with 40 illustrations Williams & Wilkins Company, Mt Royal & Guilford Aves, Baltimore 2 1949

This new edition of a standard British work presents many interesting contrasts with the current American volumes on treatment The general tone of the book is conservative, with good discussions of the features of medical management which are carried out by the patient, his family, nurses or the physician Whether the omission of many new drugs which are in daily use in this country reflects the conservatism of the authors in not including a measure until it has been well proved or whether it reflects the inevitable delay in getting out a new book of this size is difficult to say The chapter on the care of old persons is well done The emphasis on the role of housing in their management is of considerable interest

The section on infectious diseases begins with a discussion of preventive measures for each disease before curative treatment is outlined Nursing measures and diet are discussed The directions for maintaining temperature of the sick room are of interest in comparison with American methods, coal grate heating with a temperature of 65 F is recommended Sulfanilamide and sulfathiazole receive the most emphasis among the sulfonamides The doses of penicillin recommended are small compared with those commonly used in this country For most infections streptomycin, aureomycin and chloramphenicol are not discussed The discussion of the pathogenesis of tuberculosis is of interest because of the frank recognition of the frequency of transmission through milk and the inadequacy of control measures in prevention in Great Britain The use of streptomycin is briefly discussed, but no mention of the phenomenon of drug fastness, which limits its clinical usefulness, is made A discussion of BCG vaccine in prevention is included, but gold is still recommended for therapy In the section on leprosy the discussion of chaulmoogra oil, which has largely been discarded, precedes the brief discussion of the sulfone drugs, which are infinitely superior

The chapter on dehydration and hypochloremia discusses the use of saline solution but does not go into the question of acid-base balance as it is emphasized in this country No mention of potassium deficiencies which have been observed in children with diarrhea is made

The authors recommend the medical management of diabetes without the use of insulin whenever it is possible The discussion of diabetic coma is definitely inadequate This inadequacy is surprising in view of the relatively large amount of space devoted to a discussion of gonorrhea, which therapeutically is a much simpler problem

It is interesting to note that, in spite of the fact that all the necessary information for control of deficiency states is well known, almost 50 per cent of children in Britain still show signs of rickets The discussion of the use of liver in pernicious anemia is sound, folic acid is recommended only as a temporary measure No mention is made of vitamin B_{12}

The treatment recommended for cirrhosis of the liver is much less vigorous in its attack on the problem than would be considered good practice in this country The lipotropic action of methionine in the treatment of early cirrhosis is not brought out, and a high protein diet with vitamin B complex is recommended only in the advanced stage after ascites has become evident In the discussion of peptic ulcer alkalis are still recommended over the amphoteric substances No mention is made of the synthetic antispasmodic agents which avoid so many unpleasant side effects of the natural alkaloids of belladonna The place of vagotomy in the treatment of ulcer, or of the drugs such as tetraethylammonium chloride which produce the same effect medically, is not discussed The discussions of the management of the ambulatory cardiac patient and the use of digitalis are excellent The recommendations are conservative in the indications for the use of dicumarol® and quinidine, the recommended dosage of the latter drug is small Considerable emphasis is placed on the management of the rheumatic states

A good chapter is included on psychotherapy in general practice The role of psychic factors in the production of asthma, for instance, is well brought out

A short section on technical procedures is included A useful table in the appendix lists the official British names for drugs with the trade name of each manufacturer, but the dosage forms and size of packages are omitted.

Die Immunitätsforschung Ergebnisse und Probleme in Einzeldarstellungen Herausgegeben von Prof Dr R Doerr Band III Die Antigene Von R Doerr Band IV Antikörper zweiter Teil Von R Doerr Paper $8 80 $6 Pp 63 375 with 3 illustrations 252 with 12 illustrations Springer-Verlag Mölkerbastei 5 Vienna 1 1948 1949

The previous volumes of this series of monographs, the first on antibodies, part 1, the second on complement, both by Doerr, appeared in 1947 The author is an outstanding authority on immunology, with many original and fundamental contributions and monographs to his credit

Volume III has seven chapters Antigens are defined in a brief introductory chapter Antigens and haptens are discussed briefly in the second chapter Then follow chapters on the demonstration of antibody production, the antigenicity of proteins, fats and carbohydrates, the Forssman antigen, toxins, antigenic proteins of blood plasma blood cells, tissue and tumor cells, enzymes, hormones and viruses In the last chapter the biologic evaluation of antigenic function is covered In the first chapter of the fourth volume two recent hypotheses on the origin of immune globulins are presented L. Pauling s important studies on the production of specific antibodies in vitro and J Loiseleur s investigations on the antigenicity of organic substances of low molecular weight The second brief chapter deals with the recently described hemagglutinating properties of viruses The balance of the monograph is given to a thorough discussion of natural antibodies including isoagglutinins, heteroagglutinins and heterohemolysins, bacterial antibodies, antitoxins, antihemolysins, cold agglutinins and conglutinins

All these subjects are presented with a thoroughness and completeness which cannot be found in any other single monograph known to me. The promise in the title that the series will deal with results and problems of immunologic research is fulfilled Every facet of every problem has been analyzed meticulously, and the student of the subject will find here the exact status of present day knowledge. Dr Doerr presents all sides of each question in simple clear German

Volume III has 34 pages and volume IV 20 pages of references The American, British, French German, Italian and Scandinavian literature is well represented The work can be recommended to students and investigators without reservation

The future volumes will deal with blood groups, anaphylaxis, allergy, cellular and tissue immunity, anti-infectious, antiparasitic, antiviral and tumor immunity, vaccination, immunity of plants and of transplants and technic of serologic reactions These are intriguing titles, and the appearance of the additional volumes will be awaited with interest.

Faculté de medecine de Lisbonne Clinique des maladies pulmonaires recueil des travaux de clinique et de laboratoire Publiés par Lopo de Carvalho prof de Clinique médicale et al Vol IX 1943 1948 Paper Various pagination with illustrations Hospital de Santa Marta Lisbonne [n d]

This volume represents the latest collection of monographs of which there will be 29 by the Faculty of Medicine of Lisbonne, Department of Pulmonary Diseases The topics considered are mostly various phases of pulmonary diseases including tuberculosis and bronchogenic cancer, old age and the pulmonary circulation the velocity of the pulmonary circulation, angiopneumography, movement of the mediastinum pneumothorax, kymography and the study of pulmonary cavities, a study of the virulence of tubercle bacilli research on the presence of tubercle bacilli in the stomach a contribution of the study of disinfectants a study of epithelial cells of the lung cultures of the embryonic lung osteo-articular tuberculosis in Portugal, the use of penicillin by inhalation operative procedure in pulmonary surgery and a contribution to the campaign against tuberculosis in industry

Most of these monographs are in the French language a few are in Portuguese. This volume will well serve as a *reference book to those interested in* pulmonary diseases

Predicting Success in Professional Schools. By Dewey B Stuit Chairman Gwendolen S Dickson Thomas F Jordan and Lester Schloerb American Council on Education Studies Series VI Personnel Work in Colleges and Universities Cloth $3 Pp 187 The American Council on Education 744 Jackson Place N W Washington 6 D C 1949

In this volume on educational counseling the authors discuss primarily those factors that are directly related to successful performance in professional training As this material is for the guidance of administrators and counselors in the selection of students, there is first a chapter giving orientation to the basic concepts, problems and technics involved in the interpretation and utilization of prediction studies Then follow a series of eight chapters describing the technics and scientific studies that have been found most effective in predicting the probable chances of success in such training programs as engineering law, medicine, dentistry, music, agriculture, teaching and professional nursing Each chapter presents first a description of the training program and the requirements for admission in the particular field and then proceeds with a detailed review of technics and research studies, the interpretation of findings and their implications for counseling The book is well illustrated, and its value is further enhanced by an extensive bibliography in connection with each of the professional programs described

The Mammalian Adrenal Gland By Geoffrey H. Bourne Reader in Histology in the University of London at the London Hospital Medical College London Cloth $6 Pp 239 with 336 illustrations Oxford University Press 114 5th Ave New York 11 Amen House Warwick Sq London E.C 4 1949

The comparative anatomy of the adrenal gland has been the subject of numerous studies beginning with that of Meckel in 1805 In this beautifully written and printed and well organized monograph are collected the descriptions of more than 250 species of mammals from the literature as well as from the author s personal studies In our present state of knowledge, however, the comparative anatomy of the adrenals must remain purely descriptive, and one can infer little of physiologic or clinical significance from the mass of extant data The existence of medullary chromaphil tissue surrounded by the adrenal cortex is as characteristic for mammals as is the existence of hair and nails This remarkable constancy is much more striking than the variations in structure and position noted in the various subclasses of mammals

This is an excellent summary, which the student of adrenals will find of interest. The book includes a good introductory summary of the history of investigation in the field of comparative anatomy of the adrenals, a bibliography of 425 titles and reproductions of many illustrations from the literature.

Treatment in Proctology By Robert Turell B S M D Attending Proctologist Hillside Hospital New York. With a Chapter on Psychosomatic Problems by Louis Linn M D Cloth. Price $7 Pp 248 with 85 illustrations Williams & Wilkins Company Mt Royal & Guilford Aves Baltimore 2 1949

This book is packed with information of value to the busy practitioner and yet is concise. The writer outlines accepted specific therapy, offers alternate measures when differences of medical opinion exist and devotes one chapter to the important subject of diet The author s approach to his goal encompasses several allied fields of medicine, further enhancing the teaching value of the book. Deserving of special commendation is the author s plea for better diagnostic effort, with resultant better management, regarding the proctologic problems of geriatric patients

Les troubles du Métabolisme de l eau et des Électrolytes dans le coma diabétique Par H. C Plattner Paru dans Helvetica medica acta (Helvetica medica acta Series A) comme Supplementum XXIII (ad Vol 16 [1949] Fasc 2) Paper Price 6 Swiss francs Pp 71 with 20 illustrations Benno Schwabe Klosterberg 27 Basel 10 Imported by Grune & Stratton Inc 381 4th Ave New York 16 1949

Dr Plattner presents in this booklet an exhaustive and valuable summary of the known and the unknown factors causing the salt and water abnormalities in diabetic coma, together with the therapeutic measures that so far have proved most efficacious in correcting these abnormalities

The booklet should be of value both to specialists in internal medicine and to the general practitioner

Queries and Minor Notes

The answers here published have been prepared by competent authorities They do not, however, represent the opinions of any official bodies unless specifically stated in the reply Anonymous communications and queries on postal cards will not be noticed Every letter must contain the writer's name and address, but these will be omitted on request

METHODS OF DETERMINING CIRCULATION TIME

***To the Editor*—Please discuss methods of determining circulation time and their normal value**

W F Bell, M D, Rutherford, Tenn

ANSWER—The circulation time varies with many factors Consequently the interpretation of the results must be made in the light of those factors In the presence of cardiac failure, the speed of the circulating blood through the pulmonary and systemic circulations is diminished, and since the range of variation in a similar clinical situation is probably greater than variations or probable errors in circulation time tests they will usually give values which are of clinical significance

The circulation time may depend on the amount of residual blood in the heart and only slightly on the degree of decompensation Velocity of flow, therefore, may not be the measurement made in circulation time tests It is important to understand that, in accordance with Nylin's work and that of his collaborators, the prolonged circulation time is due to the injected material's being diluted in dilated cardiac chambers Altschule and Volk state there is engorgement of the pulmonary vessels and lowered cardiac output, which accounts for slowing of the circulation through the lungs Either or all of these possibilities will delay the appearance of a sufficient concentration of the injected test material in the receptor organ or, in the case of the ether test, in the alveolar air This may account for the discrepancies of many observers Most enlarged hearts are associated with decompensation and vice versa In those instances of prolonged circulation times without evidence of decompensation it must be determined whether it can be accounted for on the *basis* of an enlarged heart

The determination of all circulation time tests should include the proper instruction of the patient as to what to expect Employ a simple method of signaling the appearance of the end point, e g, "hot" for the appearance of the dehydrocholic acid effect on the throat or tongue or "now" for the appearance of the odor of ether in the ether test The patient should be warned against holding his breath, breathing too fast, coughing or talking The patient should be at ease, lying down for five to fifteen minutes before the test The pulse and respiratory rates should be noted The arm should be placed so that the level of the antecubital vein is at the level of the heart All tests should be done with the same technic A 2 cc syringe and a 20 gage needle are usually employed There are four determinations of the circulation time that are easily made, two of these, dehydrocholic acid or calcium gluconate and ether, are most commonly used

The *arm to tongue* test employs sodium dehydrocholate or *dehydrocholic acid* *Three cubic centimeters* of a 20 per cent solution of dehydrocholic acid are injected intravenously within three seconds The arrival of the drug at the tongue or throat is perceived by the patient as a bitter taste or a hot sensation The average time from the end of the injection is fifteen seconds The *range of* normal is ten to sixteen seconds

Another arm to tongue test employs calcium gluconate Five cubic centimeters of a 20 per cent solution are injected intravenously The time is computed from the beginning of the injection until a bitter taste *or* a hot sensation is perceived The normal range is nine to sixteen seconds

Arm to medulla test employs 40 *mg* of papaverine hydrochloride in 1 cc of solution, injected within one second The arrival of the drug at the medulla is marked by a deep inspiration sigh or gasp as a result of stimulation of the respiratory center The normal range is thirteen to thirty seconds The average is twenty-three seconds This method permits easy graphic registration with a pneumograph and kymograph

The arm to lung test employs 0 33 cc of ether suspended in 0 5 cc of isotonic sodium chloride solution, which *is injected* intravenously within five seconds The time is measured from the beginning *of* the injection *until* the patient reports the odor of the ether or *until* the operator notes the odor of ether on the patient's breath The normal range is four to eight seconds

The lung to face test employs an ampul of amyl nitrite The time is measured from the *first deep* inspiration to the feeling of heat in the patient's face The *normal range* is twenty to twenty-one seconds

Congestive heart failure, insulin and epinephrine administration and valvular *stenosis show* a prolonged circulation time Short circulation times *may* be *in association* with a shunt between *the right and left* sides *of* the heart, hyperthyroidism, anemia or pregnancy

The *interpretation of* circulation time tests is subject to some controversy It is *maintained by* some that isolated left ventricular failure presents a normal arm to lung time and a prolonged arm to tongue *time, whereas in* combined heart failure both are prolonged It is also maintained that in isolated right ventricular failure, the arm *to* lung and the arm to tongue times are prolonged, whereas the lung to tongue time is normal

Circulation times have been *studied for* six or more years with erythrocytes "labeled" with radioactive substances Apparently such methods are more versatile and permit the determination of circulation times to all extremities and to the ventricular chambers separately and in succession Geiger counters and roentgenograms are used to make the estimations At present these methods are not in general use, but it is possible that soon the methods will become more commonly used outside of medical centers To the present time, the new data have suggested some revisions in previous concepts of the different circulation times, but these revisions may not radically change many of the present concepts of the relationship of circulation time in heart disease

SUDDEN EPISODE OF SHOCK

***To the Editor*—A man aged 56 with a long history of duodenal ulcer and a history of dietary indiscretion the previous night had a sudden episode of shock, with pallor, cyanosis, sweating and drop of blood pressure—without pain, abdominal tenderness or rigidity of abdominal muscles Repeated *electrocardiograms* were *interpreted* as normal The erythrocyte *sedimentation rate* was normal on two *occasions, the blood count* and *serum* amylase determination were within normal limits Is it possible for a posteriorly perforated duodenal ulcer to produce such a picture?**

M D, New York

ANSWER—*It is possible that the man's ulcer perforated* posteriorly, behind the stomach but then the man would have to be insensitive to pain A simple *test* for this is to ask whether pain occurs *in dental treatment* If he were insensitive he would probably have retched for a day or two because of the great *irritation* in the duodenal region Such *irritation sends reverse waves up the stomach and esophagus* The lack of rigidity of the *abdominal wall can accompany a posteriorly perforated ulcer* because the perforation is behind the peritoneum and does not involve it

Perhaps a better explanation of the episode would be that thrombosis occurred in a small *artery in* the brain This commonly produces the syndrome described, especially with a drop in blood pressure One would want to know whether there was any change in character, loss of *memory, difficulty* in writing or much loss in weight

Another possibility to be considered is a tear in a small aneurysm in some abdominal artery or a thrombosis of *some* vessel in some fairly silent organ like the *spleen* There might also be a small hemorrhage into the adrenal gland

SUBARACHNOID HEMORRHAGE

***To the Editor*—In a recent medical staff conference, a case of spontaneous subarachnoid hemorrhage was discussed, but we were *unable to elicit data as to the statistics relating to follow-up of patients who had been treated surgically (carotid ligation) as compared with patients who had been allowed to follow the usual conservative routine* Has *neurosurgical treatment been shown to have improved percentage survival* in this type of case?**

Jean P Papps, M D, Forest Hills, N Y

ANSWER—The problem of spontaneous subarachnoid hemorrhage resulting from the rupture of an intracranial aneurysm is difficult and is not settled Such hemorrhages are usually recurrent, always serious and frequently fatal The person who suffers from a spontaneous subarachnoid hemorrhage, even though he recovers from that particular episode, as he frequently does, *will often* have a second hemorrhage within a few weeks or months As a result, probably as high as 50 per cent succumb to bleeding from the aneurysm within the first year Others, however, have no further difficulty for many years, but the fear engendered in these persons by the sense of impending catastrophe is often such as to produce a severe neurosis or an incapacitating depression For these reasons neurosurgeons have gradually come to feel that every effort should be made to deal with these aneurysms surgically, and, whereas originally it was thought advisable to wait until the patient had suffered at least two episodes of bleeding, an increasing number of surgeons believe that this is too dangerous a course and that the attack on the aneurysm should be made as soon as its diagnosis and localization are possible At present valid statistics are not available to indicate that surgical treatment, whether it be simple ligation of the carotid artery in the neck or intracranial attack on the lesion, affords better results than conservative treatment There is, however, reason to believe that with continued study and neurosurgical attack on this problem the results will ultimately be better than they are now

CHRONIC URTICARIA

To the Editor—On Aug 8 1949 I began treating a 52 year old white woman for severe chronic urticaria of ten years duration caused by multiple food allergens Although no desensitization tests were done I used one of the antihistaminic drugs (tripelennamine hydrochloride) The urticarial lesions cleared promptly but after ten days of treatment the patient presented typical symptoms of severe hay fever which she had never had before Is it possible by treatment to transform one type of allergic manifestation into another or was this onset of hay fever coincidental? Is it not rather unusual that these symptoms should have started while the patient was receiving adequate doses of an antihistaminic drug which is so effective in a large percentage of hay fever cases? Is it vaguely possible that these symptoms were an adverse reaction to the antihistaminic drug itself? Irving H Blumenfeld M D Brooklyn

Answer—If the inquirer implies that the urticaria did not return after treatment with tripelennamine hydrochloride was discontinued, the remission in the urticaria was caused by something other than the antihistaminic drug It is assumed that by clinical observation and/or tests it was determined that the patient had seasonal hay fever The onset of such hay fever would be entirely coincidental Such a patient would show as a rule immunologic evidence of allergy to ragweed by having a positive skin reaction a year or two prior to the appearance of clinical symptoms Although there are times when one allergic manifestation changes over into another this is not a regular procedure nor can it be influenced by any known factors It is not surprising that the tripelennamine hydrochloride failed to prevent hay fever In spite of commercial publicity to the contrary an appreciable percentage of sufferers from hay fever are not relieved by antihistamines while in those in whom some effect is obtained the benefit is rarely complete. Occasionally it has been reported that antihistaminic drugs produce nasal irritation In such instances the nasal symptoms should disappear shortly after the discontinuance of the drug

ASTHMA IN THE SUDAN

To the Editor—A Sudanese boy aged 16 months had his third attack of a typical asthma here in the Sudan The first was in the Sudan at the age of 9 months and the second in Egypt at the age of 13 months His father has had regular attacks of asthma for many years Please discuss possibilities and kind of early treatment if any to prevent further development of this asthma N C Mitropoulos M D Sudan

Answer—It is virtually impossible to discuss this whole subject, since it involves all phases of asthma Asthma at this age is most likely to be allergic The child should be observed with respect to circumstances preceding the attacks, the kind of foods eaten at the time other exposures and changes in weather If no information is obtained in this manner skin tests with foods and the common inhalants should be made if facilities are available Avoidance of allergic causes and avoidance of respiratory infections are the only practical means of diminishing likelihood of recurrence The active treatment of the attack is usually managed successfully by the use of ephedrine sulfate or hydrochloride about 10 mg to the dose, which may be repeated in four hours If the attack is severe or alarming 0 1 to 0.2 cc epinephrine hydrochloride in 1 1 000 dilution should be given hypodermically For prolonged symptoms and cough potassium iodide in 1 to 2 grain (65 to 130 mg) doses given in milk three times daily is helpful Aminophylline suppositories (about 1 grain in each) may also give bronchial relaxation

With regard to special conditions relating to allergy in Sudan or Egypt little is known here. Our nearest information is from Palestine in a paper by Guttmann (*J Allergy* **12** 182 1941) Bermuda grass is regarded as the most common pollen-producing plant

PORTAL CIRRHOSIS

To the Editor—A man has portal cirrhosis proved by needle biopsy of the liver He gives a history of drinking wine and beer practically every evening in moderate amounts for a period of fourteen years He works in a laundry and has been exposed to the fumes of tetrachloroethylene (perchlorethylene) on numerous occasions for ten minutes to two hours Is it possible that the tetrachloroethylene caused his cirrhosis or would it be entirely due to the drinking of fermented spirits? *M D California*

Answer.—Of all chlorinated hydrocarbons, tetrachloroethylene (perchlorethylene, ethylene tetrachloride, CCl CCl) is one least likely to induce harm. One reason for this is its relatively high boiling point (121 C.) another is that its odor is so disturbing that no person is likely to remain long in its presence With the toxicity of carbon tetrachloride for prolonged exposure rated as 1, perchlorethylene is variously rated from 0.22 to 0 50 Its tolerable exposure limit is about 200 parts per million In the present instance the exposure mentioned is casual and clearly is not continuous In the presence of sufficient exposure, all chlorinated hydrocarbons may damage the liver with acute hepatitis constituting the common manifestation Usually this damage is reversible, and portal cirrhosis is a rarity Cirrhosis due to tetrachloroethylene is not known to have occurred At present nutritional disturbances stand foremost as causative factors in liver cirrhosis The action of alcohol in producing cirrhosis may be only indirect, the primary pathologic condition being identified with nutritional impairment. In any event, distilled liquors may be more active than beer and wine

EXPOSURE TO PHOTOGRAPHIC RETOUCHING MATERIALS

To the Editor—A patient works at retouching in a photographer s office She uses Kodak spotting colors and her technic requires putting the brush in her mouth time and again, moistening it with saliva 1 What do Kodak s spotting colors contain? 2 Is there a possibility of any toxic absorption or allergic reaction? The patient complains of vague muscular pains J Alan Ulert M D Houston Texas

Answer—Regardless of the wares of any one manufacturer the practice of lip brush pointing is not commendable or technically required. Pointing with cotton pledgets wetted with a simple colloid is preferable Spot or local negative retouching requires at times numerous dyes and other color agents gums, varnishes and solvents The basic tools are suitable graphite pencils and scarifiers, including cuttle bone, dilute india inks and retouching varnish In addition, the intricate processes of photography may call for the intermittent or occasional use of substances containing shellac resin, sandarac, oil of lavender, sepia ink, dammar, mastic juniper oil, turpentine, wood alcohol, benzol, paraphenylenediamine paranitraniline, mercury compounds bromides asphaltum and fir balsam Any of numerous fixing agents reducers toners and intensifiers may be reapplied on a spot basis Additional coloring agents appear as synthetic dyes and natural water colors gamboge and vermilion red are representative Of these chemicals some such as benzol and mercury are systemic poisons some such as turpentine, are direct skin irritants some, such as paraphenylenediamine are sensitizers and some such as paranitraniline, produce methemoglobinemia It is unlikely that the vague complaints mentioned may be identified with any of the agents on the retoucher s table even though potentially damaging agents are present

BLOOD PRESSURE AT DIFFERENT ALTITUDES

To the Editor—Is there any difference between blood pressure at sea level and that at an elevation of 2 000 feet if so why? Would there be a proportional difference? If the blood pressure is 160 systolic at 2 000 feet what would it be at sea level? George H Week M D Miami Fla

Answer.—There is not at present any reliable evidence that the difference in elevation from sea level to 2 000 feet and the slight corresponding difference in oxygen pressure in the air has any influence on the heart or the blood pressure, at least in the normal person The effect of altitude on blood pressure is primarily due to too little oxygen per volume in the inspired air and in the blood and the consequent anoxia This effect appears first at an altitude from 8 000 to 12 000 feet above the sea level At such altitudes the anoxia causes some acceleration of the heart beat greater diastolic dilatation of the heart and some increased systolic blood pressure (Grollman *Am Jour Physiol* 1930 **93** 19, Strughold *Am Jour Physiol* 1930 **94** 641) This is however only a temporary effect because a longer continuance of the anoxia or a greater degree of the anoxia causes slowing of the heart by vagus nerve action and ultimate weakening of the heart by the anoxia itself

PAIN FOLLOWING CHOLECYSTECTOMY

To the Editor —A white woman aged 30, slightly underweight, underwent a cholecystectomy in March 1949 The gallbladder was diseased, and numerous stones were found The common duct appeared slightly dilated but was thin walled and no stones could be palpated Since the operation she has had seven attacks of sharp pain, radiating from the upper part of the right side in the back, across anteriorly under the lower border of the ribs on the right to the midline Pain is intermittent and requires 100 mg of meperidine (demerol®) hydrochloride for relief Glyceryl trinitrate, atropine and sedatives will not relieve the pain Physical examinations have revealed nothing except that the liver can be felt 4 cm below the ribs The blood pressure is 105 systolic and 70 diastolic There has not been any significant weight loss or observable sign of jaundice Laboratory examinations showed 4,000,000 red blood cells per cubic centimeter and 11 Gm hemoglobin, normal white blood cell count, no signs of abnormalities in the urine, the cerebrospinal test for syphilis and a flat plate roentgenogram of the abdomen Please offer suggestions on further management

M D , Texas

ANSWER —It is difficult to determine the reason for pain after a cholecystectomy Since there were numerous stones in the gallbladder the most probable explanation is the presence of a stone in the common bile duct, despite the absence of jaundice and despite the fact that the common duct was not found to be dilated at the time of the cholecystectomy Another cause of such symptoms is the presence of a neuroma on the stump of the cystic duct Womack and Crider (*Ann Surg*, **126** 31-55 [July] 1947) were the first to call attention to this interesting lesion Various other hypotheses have been made to explain the condition such as spasm of the sphincter of Oddi and pancreatitis

ATROPHY OF THE BREASTS

To the Editor —A 35 year old white woman is the mother of three normal children One other child was stillborn and on postmortem examination pulmonary atelectasis was observed She has had also two incomplete three month abortions The last pregnancy was full term in July 1948 All three living children received breast milk for periods ranging from six weeks to two months During the past six or seven months the patient has noted that both breasts have decreased in size, so much so that there is little breast tissue left There has been no loss of libido or any change in her menstrual life Her periods still are rather irregular ((28 to 35 days apart) and last three to four days The onset of menses was at 13 years There has been no dysmenorrhea, menorrhagia or metrorrhagia or other disturbance Examination of the pelvis does not reveal anything except third degree retroversion Her blood pressure was 96 systolic and 70 diastolic She has never had a systolic pressure over 100 The pulse rate was 76 and weight (except during pregnancy) was 118 pounds (54 Kg) Blood examination and basal metabolism test revealed nothing unusual Can you offer some explanation and possibly some form of treatment for the decrease in amount of breast tissue?

M D , New York

ANSWER —There appears to be no evidence of glandular dysfunction or deficiency in ovarian hormone secretion The atrophy of the breasts is more than likely due to local changes in the fatty structures of this organ Administration of estrogens for increasing the size of the breasts will probably be ineffective and actually may be harmful, causing an irregularity of the menstrual cycle

TERMINAL ILEITIS

To the Editor —One year ago my wife had a bowel resection for terminal ileitis The resected portion included a small length of cecum with the appendix and about 12 inches (30 cm) of the ileum, including a Meckel's diverticulum The regional glands were involved, but there was no sinus formation The tissue was removed well above and below the involved tissue Since the operation there has been no pain of the character previously experienced and no fever However, diarrhea has been almost constantly present There are sometimes two or three days of freedom from symptoms, but many days there are ten to fourteen bowel movements The onset of an attack is sudden, following a completely asymptomatic interval, attacks last two to eight hours The attacks seem to bear no relation to diet, nervous state, fluid intake or any other factor Diet, hydrochloric acid and various vitamin supplements have been used, phthalylsulfathiazole has not been effective Kindly make recommendations

M D , Petersburg, Va

ANSWER —Terminal ileitis frequently recurs after operation, and the most likely cause of the diarrhea is a recurrence Occasionally there is a recurrence in the colon, with the appearance of chronic ulcerative colitis A roentgenologist should study the colon, and a sigmoidoscopic examination should be done Unfortunately there is no specific treatment for the disease A low residue diet with no milk and few fluids may help Dr Crohn's new book on ileitis should be consulted (Crohn, B B Regional Ileitis, New York, Grune & Stratton, Inc , 1949)

TRICHOMONAS INFESTATION OF PROSTATE

To the Editor —What is the treatment of trichomoniasis of the prostate of about twenty years' duration that has resisted treatment, massages and irrigations? Does iodochlorohydroxyquinoline or quinacrine hydrochloride taken orally have any value?

J W Haynie, M D , Belton, S C

ANSWER —Trichomonas infestation in man is extremely difficult to eradicate It is believed by some that 80 per cent of the husbands of infected women harbor the trichomonads, thus passing the organisms back and forth The incidence is about seven times as great in Negro men as in white men The man may be a silent transmitter, which accounts for the so-called refractory cases in women No known systemic drug specifically affects the organism In the absence of secondary infection, a mandelic acid preparation, such as calcium mandelate or methenamine mandelate, may be effective orally A new sulfonamide compound, gantrisin® (3,4-dimethyl-5-sulfanilamido-isoxazole), might be used Urethral or prostatic pockets or chronic abscesses should be drained, as they constitute foci of persistent infection Removal of an adherent, pocketed foreskin has resulted in cure

POSITIVE SEROLOGIC REACTIONS FOLLOWING ANTISYPHILITIC TREATMENT

To the Editor —A white woman, age 28, was found to have a positive serologic response to tests for syphilis Primary or secondary lesions were not admitted, however, her first husband might have had syphilis Neurologic and physical examination did not reveal any significant findings She received a course of penicillin that reduced the titer from 1 12 to 1 4 Bismuth and oxophenarsine hydrochloride then reduced the titer to 1 1 After two months' rest, during which the patient improved subjectively (less nervous, alert and stronger), a Kahn test revealed a titer of 1 8 What would you advise?

M D , Florida

ANSWER —The cerebrospinal fluid should be examined first to rule out the presence of neurosyphilis Then, if thorough examinations have eliminated from consideration cardiac or visceral syphilis, the blood should be examined at monthly intervals by means of a quantitative technic. If there is a progressive rise in the serologic titer, it would be well then to repeat treatment with penicillin

COMEDOS

To the Editor —What are the causes and treatment of comedos?

Louis M Magee, M D , Natchez, Miss

ANSWER —Androgen-estrogen imbalance, diminished turgor of the skin structure, due in part to anemia, constipation or hypothyroidism, and a skin inherently rich in sebaceous apparatus are systemic factors that are thought to play a role in the development of comedos Usually the comedos are treated by application of warm towels to the face, liberal use of soap and water and then manual expression with a well made comedo extractor One should not use too much force, and only those comedos should be expressed which are not embedded too firmly An astringent lotion, such as lotio alba, should be applied to the face at night Some physicians regard with favor the use of vitamin A

RHEUMATOID ARTHRITIS

To the Editor —A girl 8 years of age has had ankylosis of all joints—arms and legs—for three years The roentgenogram shows absorption of bone, the metacarpals being like thin straws Her basal metabolic rate is + 25 per cent Is it a fault of endocrine secretion, and what glands would be involved? Is internal treatment indicated? Her appetite is good and digestion normal

N S Fraser, M D , St John's, Newfoundland

ANSWER —The available data suggest rheumatoid arthritis The extreme degree of bone atrophy is compatible with this diagnosis, and the ankylosis would be difficult to explain in another diagnosis Whether rheumatoid arthritis is the fault of endocrine secretion is still undetermined

ROENTGEN DEMONSTRATION OF FETAL SKELETON

To the Editor —At which week in gestation are the bones of a fetus visible roentgenographically?

M D , Missouri

ANSWER —Only after the fifteenth week is there sufficient calcium in the bones for roentgen visualization in utero However, from the fifteenth to the eighteenth week of gestation slight motion during the exposure may be sufficient to distort or wipe out the image of the bones

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PREVENTION OF RHEUMATIC FEVER

Treatment of the Preceding Streptococcic Infection

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The prevention of acute rheumatic fever by the prompt treatment of streptococcic infections with penicillin has been attempted in this study The results obtained show that this attempt was successful, and because of their importance these results are presented here in a preliminary report

The significance of an adequate means of prevention may be realized when it is considered that rheumatic fever develops in an estimated 200 000 to 250 000 persons in the general population of the United States yearly[1] Figures for the Armed Services similarly show a high incidence, with an average of 7 300 cases annually for the seven year period from 1942 through 1948[2] The gravity of the disease itself is emphasized by the estimate of Paul that at least 460 000 persons in the country today have rheumatic heart disease Not only is rheumatic fever a menace to health, but it is also a serious economic problem A conservative estimate of the cost of each case that occurs in the Armed Services is $16 000[2]

DESCRIPTION OF THE STUDY

The study was conducted at Fort Francis E Warren in southeastern Wyoming The Fort is an air force technical training base where approximately 80 per cent of the men are trainees who report after twelve weeks of basic training at a southwestern base The study began Jan 24, 1949 and ran continuously until July 1, 1949, except for a ten day period in April Although the average strength of the base during the study was 8,000 men, the actual number exposed to infection was much greater because the men remained in school only eight to thirty-two weeks

All patients admitted to the hospital for disease of the respiratory tract were seen within a few hours by one of the members of the professional staff of the laboratory Those having exudate on the tonsils or on the pharyngeal wall were included in the study group A total of 1,634 such patients were observed

A total of 798 patients whose Air Force serial numbers ended in an even digit received penicillin treatment and 804 patients whose serial numbers ended with an odd digit comprised the control group and received no specific treatment[4] Prior to March 3 1949 the treatment consisted of 300,000 units of crystalline procaine penicillin G (suspended in peanut oil containing 2 per cent aluminum monostearate) given intramuscularly as soon after admission as possible This dose was repeated in seventy-two hours After March 3 the following change was made in the dosage schedule 300,000 units were administered at the time of admission and again in forty-eight hours, and 600 000 units were given ninety-six hours after the initial dose Of the 798 patients who received penicillin 253 were treated before March 3 Eighty-eight per cent of the treated patients received the first penicillin within sixty hours after the onset of the symptoms of the streptococcic illness

Follow-up studies for the detection of rheumatic fever were performed between the third and fourth weeks after the initial infection without knowledge of the serial numbers of the patients or of their previous treatment Those patients suspected of having acute rheumatic fever were hospitalized until a satisfactory diagnosis was established Rigid criteria for diagnosis were followed A modification of the classification of Jones[5] was used This classification may be seen in the following tabulation

MAJOR MANIFESTATIONS

Carditis
  a Definite cardiac enlargement
  b Appearance of a significant murmur heretofore not present
  c Friction rub
  d Heart block or other electrocardiographic findings indicative of carditis
  e Cardiac failure
Migrating polyarthritis
History of recurrences
Chorea
Subcutaneous nodules

This investigation was supported through the Commission on Acute Respiratory Diseases Armed Forces Epidemiological Board Office of the Surgeon General Washington D C

From the Streptococcal Disease Laboratory Fort Francis E. Warren Wyo and the Department of Preventive Medicine Western Reserve University School of Medicine, Cleveland.

[1] Swift, H F Rheumatic Fever in Cecil R. L A Textbook of Medicine Philadelphia W B Saunders Company 1947 p 168

[2] Department of Preventive Medicine Surgeon General s Office.

[3] Paul J R The Epidemiology of Rheumatic Fever and Some of Its Public Health Aspects New York Metropolitan Life Insurance Company 1943

[4] Thirty two patients were excluded from the analysis because they were treated with aqueous penicillin by the ward physician for various reasons In none of these patients did acute rheumatic fever subsequently develop

[5] Jones T D The Diagnosis of Rheumatic Fever J A M A **126** 481 (Oct. 21) 1944

MINOR MANIFESTATIONS

- Fever
- Abdominal pain
- Arthralgia
- Skin rash
  - a Erythema marginatum
  - b Erythema multiforme
- Epistaxis
- Pulmonary changes
- Nonspecific electrocardiographic changes
- Elevated erythrocyte sedimentation rate (20 or above considered abnormal)
- Anemia

For a diagnosis of definite acute rheumatic fever a patient had to have two major manifestations or one major and two minor manifestations For a diagnosis of probable acute rheumatic fever a patient had to have one major and one minor, one major or two minor manifestations Instances of abdominal pain epistaxis pulmonary changes and anemia were encountered but did not contribute to the classification of these patients No patient with chorea or subcutaneous nodules was encountered Only persons in whom acute rheumatic fever developed between ten to thirty-five days after the onset of the observed streptococcic infection are included in this report

TABLE 1—*Cases of Rheumatic Fever Found at the Follow-Up Examination in the Treated and Untreated Groups*

	Number of Patients	
	Treated	Untreated
Definite rheumatic fever	2	17
Probable rheumatic fever	2	6
Total	4	23†

* Test of significance shows that probability is 0 0006

† Test of significance shows that probability is 0 0002

TABLE 2—*Persistence of Group A Beta Hemolytic Streptococci in the Treated and Untreated Groups*

	Treated (Percentage)	Untreated (Percentage)
Persons with group A beta hemolytic streptococci on admission	78 3	81 7
Persons with group A beta hemolytic streptococci on follow up examination	18 1	52 7

Throat cultures and blood specimens were obtained from the patients on admission and again at the time of the follow-up examination Strains of beta hemolytic streptococci isolated from cultures were grouped and typed according to the method of Lancefield[6] Antistreptolysin O titration was performed on acute and convalescent serums according to a modification of the method of Hodge and Swift[7]

RESULTS

Of the 798 patients that were treated with penicillin definite acute rheumatic fever developed in only 2 In contrast, the disease developed in 17 of the untreated patients (table 1), a difference which could be due to chance only 6 times in 10,000 Of the 2 patients in the treated group who became ill with rheumatic fever, 1 was treated within eight hours after the onset of the symptoms of streptococcic disease and the second approximately seventy-two hours after the onset

Probable acute rheumatic fever developed in 2 patients in the treated group and in 6 patients in the untreated group Of the 2 patients in the treated group, 1 received penicillin forty-eight hours after the onset of symptoms of streptococcic disease and the second one hundred and eight hours after the onset Whether the time of treatment of the initial infection is related to the development of poststreptococcic nonsuppurative complications cannot be determined at this time

The effect of penicillin treatment on the presence of betahemolytic streptococci in cultures of the throat is shown in table 2 In the treated group the number of persons having streptococci was reduced from 78 3 per cent on admission to 18 1 per cent at the time of the follow-up examination The untreated group showed a reduction from 81 7 per cent to only 52 7 per cent

The development of antistreptolysin O in the treated and untreated groups was also different In the treated group only 51 per cent of the patients showed a rise in titer of two or more tubes, while 73 per cent of the untreated patients showed a similar rise Tests of significance support the validity of these differences

The prevention of rheumatic fever, the inhibition of antibody and the partial eradication of streptococci in the group of patients treated with penicillin assume more significance when the composition of the treated group and that of the control group are compared That the two groups were comparable is demonstrated in table 3, in which various features are presented Moreover, a large proportion of the illnesses in both groups were streptococcic in origin since group A beta hemolytic streptococci were isolated from 80 per cent of all cultures made at admission and since 73 per cent of the untreated patients showed an antistreptolysin response of two or more tubes

COMMENT

The data presented concerning the incidence of rheumatic fever in the treated and control groups establish the fact that penicillin therapy of acute streptococcic infections will almost completely prevent the subsequent occurrence of rheumatic fever These results emphasize again the close relationship between streptococcic disease and rheumatic fever

Attempts to prevent the occurrence or the recurrence of rheumatic fever during the last decade have centered around the streptococcic disease that precedes most cases of acute rheumatic fever Coburn,[8] Kuttner and Reyersbach[9] and Hodges[10] showed that sulfonamide drugs given prophylactically, not only reduced the incidence of streptococcic disease but also reduced the occurrence of rheumatic fever This would seem to be a practical means of prevention in two situations (*a*) in closed groups in which the incidence of streptococcic disease is extremely high and (*b*) in select groups, such as patients with inactive rheumatic fever or rheumatic heart disease, in which the danger of recurrence is great

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[6] Swift H F, Wilson A T, and Lancefield R C Typing Group A Hemolytic Streptococci by M Precipitin Reactions in Capillary Pipettes, J Exper Med **78** 127 (Aug) 1943

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[8] Coburn A F The Prevention of Respiratory Tract Bacterial Infections by Sulfadiazine Prophylaxis in the United States Navy J A M A **126** 88 (Sept 9) 1944

[9] Kuttner A G and Reyersbach G The Prevention of Streptococcal Upper Respiratory Infections and Rheumatic Recurrences in Rheumatic Children by the Prophylactic Use of Sulfanilamide J Clin Investigation **22** 77 (Jan) 1943

[10] Hodges, R G The Use of Sulfadiazine As a Prophylactic Against Respiratory Disease New England J Med **231** 817 (Dec 21) 1944

This method of prevention has not proved to be practical for the general population, however, because of the toxicity of the sulfonamide drugs, the high precentage of sulfonamide-resistant strains of streptococci that develop and the difficulty that is entailed in mass prophylaxis.[8]

Treatment after the development of the streptococcic infection has been another approach to the problem. Sulfonamide drugs have proved to be ineffective when used in this manner.[11] Experience with penicillin has been conflicting. Weinstein, Bachrach and Perrin[12] treated 225 patients with streptococcic disease with penicillin; in 7 of these patients rheumatic fever subsequently developed. This observation supports Finland's[13] conclusion, from a review of the literature, that penicillin is not effective when used in this manner for the prevention of rheumatic fever. On the contrary, Massell, Dow and Jones[14] employed penicillin to treat ten clinical and five subclinical hemolytic streptococcic infections in patients hospitalized for rheumatic fever or rheumatic heart disease; the patients failed to exhibit subsequent recurrences. Jersild[15] has shown that poststreptococcic complications, including nephritis, are reduced after penicillin treatment of the initial illness, but he makes no statement about the occurrence of rheumatic fever.

TABLE 3—*Comparability of Treated and Untreated Groups*

	798 Treated Patients (Percentage)	804 Untreated Patients (Percentage)
Age (years)		
17 19	61.0	62.0
20 and over	39.0	38.0
Previous history of rheumatic fever	3.5	4.4
Tonsils present	72.7	70.7
Cervical nodes enlarged or tender	50.1	46.3
Leucocyte count 13 000 or over at admission	54.7	56.3
Persons with group A beta hemolytic streptococci at admission	78.3	81.7
Antistreptolysin O titer of 125 units or less at admission	70.3	69.1
Follow up obtained	89.7	89.8

The theory has been advanced that rheumatic fever is associated with a peculiar response to an unknown antigen-antibody reaction. Kilbourne and Loge[16] showed that early and intensive pencillin therapy against streptococcic disease suppressed the production of antistreptolysin O. It has been shown here that adequate treatment with penicillin not only suppresses the antistreptolysin response but also prevents rheumatic fever. Whether the antibody suppression is only a reflection of the inhibition of some more basic process in the mechanism of rheumatic fever or is in itself the responsible factor is entirely speculative at this time.

Exudate on the tonsils or oropharynx was used as the sole means of selection of patients to be included in this study because it was a rapid easily standardized method. It was thought that such a criterion would include the majority of streptococcic infections of the respiratory tract, since various studies have shown that exudative lesions of the throat appear in 60 to 90 per cent of streptococcic infections,[17] particularly in a population experiencing epidemic rates of streptococcic illnesses. The isolation of group A streptococci from 80 per cent of the patients and the demonstration of an increase in the antistreptolysin O titer in 73 per cent of the control group indicate that the majority of the patients actually had streptococcic disease. A few undoubtedly had nonstreptococcic exudative tonsillitis.

If the incidence of rheumatic fever is to be reduced materially by early treatment with penicillin, it becomes necessary that streptococcic infections be diagnosed accurately and early. In some cases the clinical findings alone will permit an almost certain diagnosis of streptococcic infection. Characteristically, such illnesses present a sudden onset of sore throat with pain on swallowing, fever and other constitutional reactions, diffuse redness and edema of the soft palate, tonsils and oropharynx, discrete or confluent exudate and large or tender cervical lymph nodes. Supportive data may be obtained from the laboratory. Many patients will have an elevated total leukocyte count. Cultures of the pharynx will almost always show a predominant growth of beta hemolytic streptococci. Depending on the availability and use of the preceding criteria, a large percentage of streptococcic respiratory infections can be reliably and rapidly diagnosed, particularly during an epidemic period. Treatment with penicillin can thus be instituted immediately.

SUMMARY

Evidence is presented to indicate that rheumatic fever can be prevented by the treatment of streptococcic disease with penicillin. A total of 798 patients with streptococcic infections were treated with penicillin; in only 2 did acute rheumatic fever subsequently develop. Of 804 untreated patients, the disease developed in 17. Penicillin therapy likewise suppresses the antistreptolysin O response and eradicates the streptococci in many cases.

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[12] Weinstein L. Bachrach L and Perrin T S Studies of the Influence of Penicillin on the Immune Reactions in Streptococcal Pharyngitis J Clin Investigation **28** 817 (July) 1949

[13] Finland M Use of Penicillin in Infections Other Than Bacterial Endocarditis Advances Int. Med **2** 350 1947

[14] Massell B F Dow J W and Jones T D Orally Administered Penicillin in Patients with Rheumatic Fever J A M A **138**: 1030 (Dec. 4) 1948

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[16] Kilbourne E D and Loge J P The Comparative Effects of Continuous and Intermittent Penicillin Therapy on the Formation of Antistreptolysin in Hemolytic Streptococcal Pharyngitis J Clin Investigation **27**: 418 (July) 1948

[17] Rantz L A Boisvert P J and Spink W W Hemolytic Streptococcic and Nonstreptococcic Diseases of the Respiratory Tract, Arch Int. Med **78** 369 (Oct) 1946 Footnote 11

Patents, Commissions, Rebates and Secret Remedies—An ethical physician will not receive remuneration from patents on or the sale of surgical instruments, appliances and medicines, nor profit from a copyright on methods or procedures. The receipt of remuneration from patents or copyrights tempts the owners thereof to retard or inhibit research or to restrict the benefits derivable therefrom to patients the public or the medical profession. The acceptance of rebates on prescriptions or appliances, or of commissions from attendants who aid in the care of patients, is unethical. An ethical physician does not engage in barter or trade in the appliances devices or remedies prescribed for patients but limits the sources of his professional income to professional services rendered the patient. He should receive his remuneration for professional services rendered only in the amount of his fee specifically announced to his patient at the time the service is rendered or in the form of a subsequent statement, and he should not accept additional compensation secretly or openly directly or indirectly from any other source.

The prescription or dispensing by a physician of secret medicines or other secret remedial agents of which he does not know the composition or the manufacture or promotion of their use is unethical.—Section 6 Chapter I of the PRINCIPLES OF MEDICAL ETHICS of the American Medical Association.

PITUITARY ADRENOCORTICOTROPIC HORMONE (ACTH) THERAPY IN EOSINOPHILIC LEUKEMIA

A Preliminary Report

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Eosinophilic leukemia is a rare condition and perhaps because of its infrequence has not been completely accepted by all authorities as a clinical entity However there is the occasional case of leukemia in which the most striking feature is a preponderance of eosinophils among the leukemic cells Whether this type of leukemia is merely a variation of a myeloid leukemia or entitled to a separate classification is an academic question Evans and Nesbit [1] in a recent review were able to collect 18 cases of eosinophilic leukemia, and they added 1 case of their own In approximately 200 cases of leukemia studied at the Hospital for Sick Children the case under consideration, with the possible exception of 1 other case, which did not fulfil all the requirements for a definitive diagnosis of eosinophilic leukemia, is the only one of this type which has been encountered

In pituitary adrenocorticotropic hormone (ACTH) therapy the effects of the stimulation of the adrenal cortex on the excretion of cortin-like substances in the urine carbohydrate metabolism, electrolyte balance and nitrogen balance have been described [2] A relationship between lymphoid tissue and adrenocortical hormone has also been established [3] In addition, a depression of the total number of circulating eosinophils after the administration of pituitary adrenocorticotropic hormone has been described [4] A requisite for the occurrence of this phenomenon is an adrenal cortex capable of stimulation Thorn, Forsham Prunty and Hills [5] have elaborated a test for adrenal cortical insufficiency on the basis of the reduction of the circulating eosinophils and an increase in urinary uric acid–creatinine ratio following stimulation of the adrenal cortex by the hormone In the absence or impairment of function of the adrenal cortex, a reduction of the circulating eosinophils does not occur after the administration of the compound

On the basis of the known depressant effect of adrenal cortical activity on the number of circulating eosinophils, it was considered that there was a rational basis for the treatment of a patient who had eosinophilic leukemia with pituitary adrenocorticotropic hormone The following case report gives the salient clinical features, methods of investigation, treatment and net results to date A detailed analysis of the hematologic and metabolic studies and a further follow-up will be given in a subsequent report

REPORT OF CASE

History—W B, a boy 7 years of age, was admitted to the Hospital for Sick Children on Oct 19, 1949 The complaint was pain in the right knee for two days, two months prior to admission, and occasional joint pain and fever for three weeks It was stated that the father had hay fever and asthma, but the family history was otherwise noncontributory The boy had received unboiled, unpasteurized milk since he was 1 year of age He had not had any of the infectious diseases but had been immunized for diphtheria and pertussis Except for the present illness, he had always been healthy The tonsils were removed when he was 3 years of age Two months prior to admission he was seen by the family physician because of pains in the legs The boy was not considered to have rheumatic fever at this time

Three weeks prior to admission the mother thought the boy did not look well She noted that his temperature was elevated to 100 F , because the child complained of an occasional joint pain, the family physician was again consulted A diagnosis of rheumatic fever was made at this time Later the boy was seen by a pediatric consultant, who confirmed the diagnosis and prescribed large doses of acetylsalicylic acid This was not tolerated, so the child was admitted for treatment and investigation

Physical Examination—The boy was well developed and undernourished, he was not acutely ill but appeared pale The temperature was 101 F and the pulse rate 125 per minute Except for the pallor, questionable enlargement of the cervical lymph nodes and a geographic tongue, the only abnormal observations were in the heart The pulse was rapid and regular The apex beat was in the sixth interspace in the midclavicular line There was a loud, blowing, systolic murmur at the apex transmitted to the axilla and somewhat to the pulmonary area This murmur had none of the qualities of a hemic murmur The blood pressure was 128 systolic and 80 diastolic The sedimentation rate was 27 mm per hour (Landau) Roentgen examination of the heart showed slight enlargement with an accentuation of the hilar markings, suggestive of congestive heart failure The urine was normal

Routine blood investigation revealed hemoglobin 8 8 Gm per hundred cubic centimeters, red blood cell count 3,200,000, white blood cell count 22,100, and platelet count 200,000, with a differential count of eosinophils 47 per cent, neutrophils 25 per cent, young metamyelocytes 1 per cent, lymphocytes 27 per cent and 1 nucleated red blood cell per 100 white blood cells As part of the investigation to explain the eosinophilia, sternal marrow studies were done, there was a total nucleated count of 150,000 cells per cubic millimeter (upper limits of normal by our methods), with 70 megakaryocytes per million nucleated cells The differential count (400 cells) was blast forms 53 per cent, myelocytes 0 5 per cent, juvenile neutrophils 2 per cent, eosinophilic myelocytes 2 5 per cent, eosinophilic metamyelocytes 2 5 per cent, juvenile eosinophils 2 5 per cent, adult

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The purified pituitary adrenocorticotropic hormone (ACTH) used in this study was provided by Dr John Mote of the Armour Laboratories, Chicago

From the Department of Pathology, the Hospital for Sick Children, and the Department of Pathology of the University of Toronto Faculty of Medicine (Dr Donohue)

From the Wards and Laboratories of the Hospital for Sick Children and the Department of Pediatrics of the University of Toronto Faculty of Medicine under the direction of Dr Alan Brown M D, F R C P (Drs Snelling Jackson Keith Chute Laski and Silverthorne)

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eosinophils 7.5 per cent lymphocytes 23 per cent and nucleated red blood cells 4.5 per cent. In view of these marrow observations a diagnosis of eosinophilic leukemia was made. Roentgenograms of the long bones showed transverse bands of radiotranslucency in the metaphysial regions, which were considered to be in keeping with a diagnosis of leukemia. The tuberculin reaction was negative (0.05 mg old tuberculin intracutaneously). Agglutination reactions for typhoid paratyphoid and Brucella abortus were negative. Blood cultures on two occasions were negative. Stools were negative for ova and parasites. A trichinella antigen reaction was negative.

In spite of reluctance on the part of the clinicians to diagnose two diseases it was considered that the boy had leukemia and rheumatic carditis rather than that the cardiac observations could be attributed to a bizarre manifestation of a leukemic process. The diagnoses were eosinophilic leukemia and rheumatic carditis with mitral involvement.

Course.—In one week the hemoglobin level dropped to 7.7 Gm per hundred cubic centimeters, but there were no other significant changes in the clinical or laboratory data. Because of the unusual combination of rheumatic carditis and a rare type of leukemia it was decided that the boy should be kept under observation. He was given two transfusions of 500 cc. of blood, which raised his hemoglobin level to 10.1 Gm per hundred cubic centimeters and he was discharged Nov. 10, 1949 to return at weekly intervals. The sternal marrow the day before discharge showed a total nucleated count of 85,000 with 52 per cent blast forms.

He was readmitted one and a half weeks later, November 22. Except for another fall in hemoglobin to 8.4 Gm per hundred cubic centimeters, there was no remarkable change in his health in the interval. The physical examination on this admission revealed essentially unchanged conditions except that the tip of the spleen was palpable. A sternal marrow aspiration the day after his second admission showed 88 per cent blast forms. During approximately six weeks of observation the patient's white blood cell count varied from 34,000 to 10,000, tending gradually to fall. The films showed eosinophilia constantly (from 40 to 50 per cent). A considerable number of the eosinophils were abnormal in that they were deficient in granules. Only rarely was an occasional blast form encountered in the peripheral blood.

Late in November an allotment of pituitary adrenocorticotropic hormone was made to ascertain its effect on this particular type of leukemia. As far as possible a complete chemical and hematologic investigation was planned, including balance studies. When the aid of various specialists was indicated it was enlisted.

Prior to the establishment of a base period of observation beginning Dec. 1, 1949, two transfusions of 250 cc. of blood were given. During the base period deterioration in the cardiac condition was noted; the liver became enlarged down to the umbilicus and there was moisture in the bases of both lungs. There was no generalized edema. The tip of the spleen was palpable. At the end of the base period of observation December 8, the white blood cell count had decreased from its previous high of 34,000 to 9,200 with 2,900 eosinophils. The sternal marrow at this time showed 95 per cent blasts forms which was considered to be an indication of the advancement of the disease.

On December 9 the intramuscular administration of pituitary adrenocorticotropic hormone, 80 mg. per day in four divided doses was started; treatment continued for six and one-half days during which a total of 500 mg. was given. In this period he received three transfusions of 100 cc. of whole blood.

After administration of the drug the heart murmur was not significantly altered but merely registered minor day to day variations. The liver began to enlarge slowly at first and then rapidly so that four to five days after the commencement of therapy it was 4½ to 5 inches (11.4 to 12.7 cm.) below the right costal margin. At this time the subcutaneous tissues of the body were slightly edematous and fine crepititations appeared at the bases of the lungs. As the boy was rapidly approaching a state of acute cardiac decompensation he was placed on a low sodium diet (20 to 30 mg. per twenty-four hours) and 0.25 mg. digoxin per day was given. Both of these measures were continued throughout the remainder of his hospitalization. The pituitary adrenocorticotropic therapy was stopped two days later (December 15) because of heart failure. At this time there were fine rales at the base of the lungs, enlargement of the liver down to the pelvis, free fluid in the abdomen, edema of the scrotum, puffiness of the face and pitting edema of the legs. During this first period of hormonal administration the number of eosinophils in the peripheral blood rapidly fell to zero (absolute count[6]) with a corresponding decrease in the white blood cell count. The sternal marrow at the end of the period showed a decrease in the number of blast forms to 66 per cent. The signs of cardiac failure began to disappear with the cessation of administration of pituitary adrenocorticotropic hormone. The liver became smaller, the edema disappeared, the chest cleared and the boy lost weight, coincident with a copious diuresis and increase in the output of sodium chloride in the urine. A transfusion of 100 cc. of whole blood was given December 19. In the interval between the first and second course of the drug the eosinophils quickly reappeared in the peripheral blood to reach a maximum considerably in excess of normal (630 per cubic millimeter, or 13 per cent of a total white blood cell count of 5,000). The following day, December 20, five days after withdrawal of the drug, treatment was restarted at a lower dosage of 40 mg. per day in four divided doses and the drug was administered continuously for a period of eighteen days for a total of 680 mg. On December 23 another transfusion of 100 cc. of whole blood was given. No further change was noted for one week, then slight edema of face, abdomen and sacrum appeared and there was a slight enlargement of the liver. These changes were slowly progressive, but while receiving 40 mg. per day of the hormone the patient did not exhibit the degree of cardiac decompensation noted with the administration of 80 mg. per day.

At the termination of pituitary adrenocorticotropic hormone therapy on Jan. 6, 1950 there was considerable edema of the scrotum, sacrum and abdominal wall and some free fluid in the abdomen. However the liver had not enlarged significantly and there were no crepitations in the lungs. A striking feature was the lack of edema of the extremities. On the day when the drug was discontinued the boy, whose face had gradually become moon-shaped during the course of treatment, began for the first time to show acne on the forehead and cheeks. In addition his voice became somewhat lower. After discontinuance of the drug the edema and scrotal swelling gradually cleared in approximately one week, concomitant with diuresis. About half way through the second course of therapy, the patient's appetite became voracious. Subsequent to the transfusion of blood given Dec. 23, 1949 the hemoglobin level was maintained and further transfusions were not necessary in spite of the fact that approximately 10 cc. of blood was withdrawn daily for the next two weeks for various blood tests.

In the accompanying graph are shown the main hematologic observations. The details of the peripheral and marrow differential counts have been omitted. During the second period of hormonal administration the absolute eosinophil count gradually fell over a period of eight days from 580 per cubic millimeter to zero and stayed at this level for the remaining ten days. The white blood cell count showed a decrease roughly corresponding to the elimination of the eosinophils. After completion of the second course of hormonal therapy the eosinophils returned gradually in the peripheral blood but at the time of discharge had not exceeded normal limits.

A sternal marrow aspiration performed Dec. 29, 1949, approximately half way through the second course, showed a total nucleated cell count of 20,000 per cubic millimeter, with 17 per cent blast forms This was repeated Jan 5, 1950, the day prior to cessation of treatment, yielding a total nucleated count of 8,500 per cubic millimeter and 8 5 per cent blast forms A further marrow aspiration January 19, eight days after discontinuation of the drug, showed a total nucleated count of 15,000 per cubic millimeter with 6 per cent blast forms Coincident with the decrease in the number of blast forms there was an increase in the number of cells of the erythrocytic and granulocytic series

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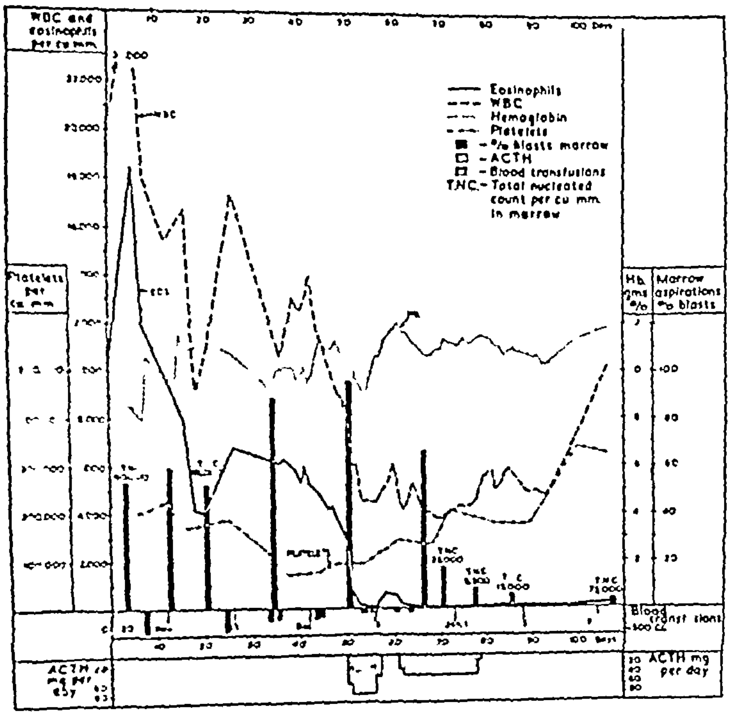
[6] The Dunger method of counting eosinophils (Dunger, R.: Eine Einfache Methode der Zahlung der eosinophilen Leukozyten und der praktishe Wert dieser Untersuchung, Munchen. med. Wchnschr. 57: 1942, 1910) as recommended by Thorn and others[3] was not entirely satisfactory because of the rapid disintegration of the eosinophils. Empirically it was found that the addition of 3 per cent of a 40 per cent solution of formaldehyde to the eosin acetone solution yielded a counting fluid in which the eosinophils were easily recognized and stable for several hours.

On January 22 the boy was discharged to return at weekly intervals for follow up There was evidence that in regard to his leukemia a remission of important degree had occurred His cardiac condition was unimproved, and this necessitated confinement to bed and/or a wheel chair with an appropriate cardiac regimen

At the boy's last visit to the hospital on Feb 3, 1950, four weeks after cessation of the hormonal therapy, there was still no evidence of a recurrence of the leukemia The hemoglobin level had increased slightly to 11 8 Gm per hundred cubic centimeters, the total white blood cell count was 10,200 per cubic millimeter, with 244 eosinophils (2 to 3 per cent), platelets numbered 325 000 per cubic millimeter, and the sternal marrow showed a total nucleated cell count of 75,000 per cubic millimeter, with 4 per cent blast forms It was also considered that the cardiac condition of the boy was slightly improved



Hematologic observations in patient with eosinophilic granuloma treated with pituitary adrenocorticotropic hormone (ACTH)

COMMENT

On the basis of (1) the large number of circulating eosinophils, including some abnormal forms, (2) progressive anemia, (3) the bone marrow observation of a high proportion of primitive eosinophils and blast forms early in the investigation, with a progressive increase in the number of blast forms prior to treatment, and (4) the suggestive roentgen observations in the long bones, it is considered that a diagnosis of eosinophilic leukemia was justified

Although the total white blood cell count and the absolute number of circulating eosinophils were decreasing prior to the administration of pituitary adrenocorticotropic hormone, there was ample evidence that the boy's condition was gradually becoming worse, as indicated by the persistent anemia requiring repeated transfusions of blood and the progressive increase in the number of blast forms in the bone marrow during the relatively short period of observation

Striking features in this case were the behavior of the circulating eosinophils during and subsequent to the administration of the hormone and the gradual reduction in the number of blast forms in the bone marrow to a relatively low count A significant observation is that since December 23, even though approximately 10 cc of blood was withdrawn daily for two weeks during the test period for various chemical determinations, no transfusions have been given and the hemoglobin level has been maintained Sufficient marrow for a total nucleated count was *not* obtained at every marrow aspiration, but at the last three aspirations, all of which yielded sufficient material, the total marrow count obtained was low As the differential indicated that marrow was undoubtedly obtained, the low counts concomitant with the decrease in blast forms probably indicated a fundamental change in the bone marrow

The hematologic observations demonstrate that the administration of pituitary adrenocorticotropic hormone produced in this child with eosinophilic leukemia a significant remission which has been sustained for four weeks Further study will determine how long the remission will last

The biochemical aspect of this case was followed in some detail The data obtained are too extensive to be published in this report, but the following general observations were made The nitrogen balance was positive during the first half of the treatment, becoming negative during the second half At the time the nitrogen balance became negative other variations were apparent The creatine and total sulfate excretion in the urine rose sharply and maintained a high plateau The potassium balance fluctuated widely, the calcium balance became negative and the phosphorus balance no longer paralleled the calcium balance Also, the urinary urobilin, which had been strongly positive during most of the treatment with the hormone, became negative These peculiar fluctuations in the chemical balance in all probability indicate a profound shake-up in the metabolism This period coincided with the period in which there was the greatest fall in the blast forms in the bone marrow

The sodium and chloride balances showed decided retention, particularly of sodium, during the entire treatment The edema was probably controlled only by the low sodium diet employed, as practically all the sodium present in the food was retained Creatinine excretion was essentially constant throughout The uric acid excretion reached a high peak during the first course of treatment with 80 mg of the hormonal agent per day It dropped sharply when treatment was stopped and maintained a level slightly above that of the base period for the remainder of the study Excretion of 17-ketosteroids rose progressively during treatment to a peak of 18 mg per day It dropped sharply when treatment was stopped

Variations in blood values for sodium, potassium, chloride, calcium and nonprotein nitrogen were minor and within normal limits Serum inorganic phosphorus was somewhat low during treatment, increasing to normal after treatment was stopped Phosphatase was low Fasting blood sugar levels and dextrose tolerance curve values were above normal

During the later part of the period of hormonal administration the boy manifested a "Cushing syndrome-like" moon-shaped face with acne on the forehead and nose These gradually cleared in the two weeks following the treatment Throughout the entire period of observation the boy was alert, intelligent and cooperative He was seen repeatedly by members of the psychiatric service, and there was no obvious development of a state of euphoria

A complicating feature was the cardiac involvement It is the opinion of the cardiologist that in all probability the heart lesion was rheumatic with myocardial and mitral involvement Throughout the entire period of observation, except for the acute decompensation produced by the water and sodium retention during the first course of pituitary adrenocorticotropic hormone and minor variations in the quality of the murmur observed during the entire course of treatment, there was no significant alteration either for better or for worse in his heart condition During the period of observation the maximum blood pressure recorded was 128 systolic and 95 diastolic and the minimum was 90 systolic and 60 diastolic, there was no demonstrable relation between fluctuation in the blood pressure and the administration of the hormone

SUMMARY AND CONCLUSION

1 A case of eosinophilic leukemia with associated rheumatic heart disease is reported

2 Treatment with pituitary adrenocorticotropic hormone (ACTH) had the following effect on the leukemia (*a*) The circulating eosinophils were completely eliminated during the period of administration, (*b*) since withdrawal of the drug the circulating eosinophils have remained within normal limits to the date of writing (four weeks), and (*c*) a remission in the bone marrow has been produced, reducing the blast forms from a high of 95 per cent to 4 per cent, a level which has been maintained to date

3 The usual side effects of administration of pituitary adrenocorticotropic hormone were noted

4 The hormonal therapy did not result in significant alteration in the cardiac condition

ADDENDUM

The patient has been followed for a total of fifteen weeks after the first two courses of hormonal therapy During the first thirteen weeks of this period he did not receive treatment His clinical condition remained essentially unchanged, and the hemoglobin was maintained at approximately 10 to 11 Gm per hundred cubic centimeters However, there was a slow but steady increase in the numbers of circulating eosinophils to a maximum of 2,500 per cubic millimeter (26 per cent), with a total white blood cell count of 9,500 per cubic millimeter, and the blast forms in the marrow had increased from a low of 4 per cent to 11 per cent During the last two of the fifteen weeks of follow-up the boy has been receiving a third course of pituitary adrenocorticotropic hormone The hematologic response to this last course appears to be more sluggish than that obtained during the first two courses

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ANTIHISTAMINIC DRUGS FOR COLDS

Evaluation Based on a Controlled Study

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In view of the favorable reports concerning the use of antihistaminic drugs in treatment of the common cold[1] and in view of the recent release of these agents to the public without medical prescription, with the prompt appearance of an onslaught of full page newspaper advertisements and radio announcements, it seemed advisable under controlled conditions to confirm the efficacy of orally administered antihistaminic drugs in the treatment of the common cold and also to test the effect of such a drug given intranasally For these reasons we decided to administer tripelennamine hydrochloride (pyribenzamine hydrochloride®)[2] orally and by nebulizer and chlorothen (tagathen®)[3] citrate (N,N-dimethyl-N′-[2-pyridyl]-N′-[5-chloro-2-thenyl]-ethylenediamine citrate) orally In addition, inert tablets resembling tripelennamine and an inert solution in nebulizers similar to the tripelennamine-containing nebulizers were used as controls[2]

Any form of treatment for the common head cold is influenced by so many factors that only a rigidly controlled study eliminating as many variables as possible will provide results on which relatively valid conclusions can be based Some of the variables are suggestibility of patients and also their physicians, fluctuation of a person's degree of immunity, difficulty of objective diagnosis of a head cold, unreliability of subjective impressions of a developing head cold until clearcut symptoms such as "sniffles" occur, and even then the patient may have some other disease, such as hydrorrhea due to vasomotor rhinitis, the variable course of a head cold, the difficulty of follow-up examinations in a relatively trivial, spontaneously curable and self-limited disease, and variations in age and general health of patients

Some of these factors merit further discussion Fluctuations of immunity were discussed by C H Andrewes[4] in his Dunham Lecture at Harvard Medical School He concluded that almost everyone has his own "foolproof" technic for preventing or curing colds, yet colds are as numerous and as troublesome as ever Even the most eminent men of science almost invariably lose all sense of critical judgment where their own colds are concerned The spontaneous variation of duration of head colds was shown by H S Diehl,[5] who found that 35 per cent of patients with colds who received lactose reported good results, and he stated that it is because this percentage is so large that it is possible to convince the public that almost any treatment for colds is of value He found that some of his reports from persons receiving lactose would have made admirable testimonials for this inert material

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[1] (*a*) Brewster J M Benadryl as Therapeutic Agent in Treatment of Common Cold, U S Nav M Bull. **47** 810 (Sept Oct) 1947 (*b*) Antihistaminic Drugs in the Therapy of the Common Cold ibid **49**: 1 (Jan. Feb) 1949 (*c*) Murray H G Treatment of Head Colds with an Antihistaminic Drug Indust. Med. **18** 215 216 (May) 1949

[2] Supplied by *Ciba Pharmaceutical Products Inc Summit N J*

[3] Supplied by Lederle Laboratories Division American Cyanamid Company Pearl River N Y

[4] Andrewes C H cited by Time **44** 99 (Nov 21) 1949

[5] *Diehl H S Medicinal Treatment of Common Cold* J A M A **101** 2042 (Dec 23) 1933

REVIEW OF LITERATURE

Brewster[1a] in 1947 reported the abortion of the common cold in 10 per cent of over 100 patients treated with diphenhydramine hydrochloride He stated that there was no prevention of the secondary sinus infection once the cold had fully developed and that the ideal of treating patients experiencing initial symptoms of nasopharyngeal soreness and nasal engorgement could seldom be attained, even in a small and closely knit staff Inhibition of serous discharge from respiratory mucous membranes was the most important result obtained

However, in 1949 Brewster[1b] stated that of 572 patients with the common cold treated with antihistaminic drugs 19 (90 per cent) of 21 treated within an hour after the onset of symptoms were cured, as were 74 per cent of 116 patients who were treated within the first six hours Brewster acknowledged the diagnostic difficulties involved in making a diagnosis within the first hour and stated that many would properly challenge the possibility of such a diagnosis

Murray[1c] reported an uncontrolled series of 494 subjects with head colds treated with tripelennamine hydrochloride 22 3 per cent reported disappearance of all symptoms within twenty-four hours, 41 3 per cent reported pronounced lessening of discomfort or disappearance of symptoms in two or three days, 16 8 per cent were 'greatly improved" or were not entirely free of symptoms for six or seven days, and 19 6 per cent observed no effect

Diehl, Baker and Cowan[6] made a discovery of importance to any investigator attempting to appraise the efficacy of drugs used for colds A group of 276 patients receiving an inert material for the prevention of colds reported an average of 5 6 colds during the year preceding the study but only 2 1 colds during the year of study Similar results were obtained in the next year in another control group of 372 patients (average of 5 4 colds in the year before study and 1 7 during year of study) The authors instructed subjects to record a cold only if symptoms persisted twenty-four hours or longer and believed that the use of this criterion resulted in fewer colds being reported

H S Diehl in the carefully controlled study referred to previously[6] concluded that a combination of papaverine hydrochloride with codeine sulfate, morphine or dihydromorphinone hydrochloride gave "definite improvement" in 74 to 78 per cent of patients Brewster reported cure in 31 per cent of 22 patients using codeine sulfate and papaverine hydrochloride within twelve hours but in none of 50 patients who started treatment after symptoms had been present twenty-four hours Diehl stated that the use of sodium bicarbonate, lactose and acetylsalicylic acid was followed by "definite improvement" in 35 to 42 per cent of cases A significant observation was that as the winter progressed colds tended to become severer, and in May all medicines used resulted in decreased reports of "definite improvement"

TECHNIC OF STUDY

The aim of this investigation of results with antihistaminic drugs for colds was to eliminate as many variables as possible The study was confined to healthy young men in the military service Medical attention was rendered before the subject's duties began, eliminating the temptation to needlessly seek medical attention to avoid onerous duties Personal prejudice was lessened because the physicians prescribing treatment and making follow-up examinations were unaware of what medicines the patients were receiving

Pharmacists dispensed one of five medicines in order and recorded the necessary protocol in a ledger Patients were encouraged to report for medical attention as soon as practicable, we noted particularly the effect on local and constitutional symptoms, the development of thick nasal discharge, the duration of this cold compared with the average length of a cold for the patient and the occurrence of undesirable side effects

It was not practicable to attempt, in this study, to see the patients within the first few hours of a cold, they were instructed to report to the first Sick Call formation following the onset Thus, patients with transient, misleading symptoms, really not manifestations of a head cold, were less likely to be included in this investigation Furthermore, patients who seek medical attention for colds usually do not do so within the first few hours after onset of symptoms However, a controlled study of self medication of colds would be necessary to investigate the efficacy of antihistaminic drugs when taken within the first few hours after the initial symptoms occur

It was believed that only personal follow-up which continued over seventy-two hours could be relied on for an accurate appraisal of the results of treatment Therefore patients were seen personally by us on two or three occasions after the initial visit, all patients were seen seventy-two hours after treatment was begun

Results of Treatment of the Common Cold

	Patients	% No Help	% Slight Improvement	% Moderate Improvement	% Cured in 24 Hrs
Tripelennamine hydrochloride (oral)	39	35 9	17 9	33 8	12.9
Chlorothen citrate (oral)	44	10.2	31 8	31 8	18 2
Placebo (oral)	39	10 3	25 6	35 9	28.2
Tripelennamine hydrochloride (nebulizer)	37	24 4	21 6	27	27
Placebo (nebulizer)	31	35 5	25.8	12.9	25 8
Total	190				

MEDICAMENTS

Five types of treatment were used, dispensed consecutively by the pharmacists The first patient received tripelennamine hydrochloride in 50 mg tablets, the second received chlorothen citrate in 25 mg tablets, the third received a placebo superficially resembling tripelennamine, the fourth received tripelennamine hydrochloride, 0 5 per cent solution, in a plastic nebulizer, and the fifth received a placebo in a nebulizer identical with the one used for tripelennamine[2]

Oral medicaments were given in a dose of 50 mg spaced as evenly as possible five times during the day and were given for three days Nebulizers were also used for three days, patients were instructed by the pharmacists to compress the tube twice for each nostril and to use the nebulizer every three or every four hours

RESULTS

This investigation of 190 patients with head colds disclosed that cures within twenty-four hours were reported by 16 per cent of patients given antihistaminic drugs orally, 27 per cent of 70 patients receiving placebos (oral and intranasal) also reported cures Lessened serous nasal discharge was much more common in subjects receiving antihistaminic drugs than in those receiving placebos Figure 1 graphically shows the results of this study It is apparent that patients receiving oral placebos fared at least as well as those taking tripelennamine hydrochloride and chlorothen citrate orally Patients receiving tripelennamine hydrochloride solution by nebulizer experienced essentially the same results as those receiving oral and intranasal placebos

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[6] Diehl H S Baker A B, and Cowan, D W Cold Vaccines Evaluation Based on Controlled Study J A M A **111** 1168 (Sept 24) 1938

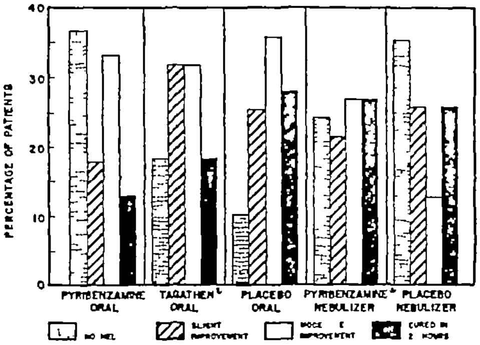

Fig 1—Results of various treatments of the common cold

In an effort to ascertain whether patients receiving medicaments early in the course of their illness were more likely to be cured than those starting treatment later, the results obtained with each form of treatment were broken down into four time blocks Figure 2 discloses that patients who began treatment within twenty-four hours after the onset of a head cold were about as likely to be among those reporting no help as among the group reporting cures This was approximately equally true of patients receiving all forms of treatment

COMMENT

The widespread use of antihistaminic drugs by the public, as well as by physicians, for the cure of the common cold and the paucity of controlled work in this field require confirmatory investigations under carefully controlled conditions

Many factors involved in an accurate appraisal of the head cold have been eliminated in this investigation, which was along lines set down by H S Diehl at the University of Minnesota Unavoidably, diagnoses and results of treatment had to depend largely on statements by the patients, as in previous investigations referred to in this article

The concomitant use of controls is necessary because immunity fluctuates and because head colds may be due to different organisms at different times of the year Consequently, the proportion of cures obtained in December may be different from that obtained in May, as shown by Diehl and associates

Our observations coincided with those in Brewster's first article [1a] that is, the subjective relief afforded might be attributable to the inhibition of serous discharge by antihistaminic agents, and secondary sinus infection was not prevented once the cold had fully developed Brewster later reported cures of 18 per cent of patients treated when twenty-four hours had elapsed after initial symptoms We had to group our patients into different time categories those treated within the first twenty-four hours after onset of symptoms and then in every additional twenty-four hour period Therefore, the interesting results of Brewster—the cure of 90 per cent of patients treated with antihistaminic drugs within the first hour of onset of symptoms (and 74 per cent within the first six hours)—could not be investigated in this study To judge by our results his predictions—that the incidence of the common cold will be reduced to a startling degree when the antihistaminic drugs are more widely prescribed for early treatment of colds, much as acetylsalicylic acid is at present, and that the antihistaminic agents, if properly and universally used could reduce the incidence of colds to near the vanishing point—are unlikely to prove accurate However, in another project the results obtained when persons were given antihistaminic drugs in advance (to take as soon as they experienced the first symptoms of a cold) will be analyzed Although such work—in which complete dependence is placed on diagnostic and critical abilities of the patient—is far from ideal, it is the only practical method of investigating the effects of extremely early use of antihistaminic drugs Of course, such a study must be carefully controlled, provided the number of patients is large, perhaps one may assume that the imponderables and the uncontrollable elements will be canceled out

A noteworthy result of this study is that 27 per cent of persons receiving an oral placebo reported cure within twenty-four hours This result is similar to Diehl's results with lactose Therefore, in any study of the effect of treatment on colds the likelihood of spontaneous recovery of about one third of the subjects must be borne in mind before enthusiastic conclusions are reached At the inception of this study it was considered desirable to include about 400 patients However, when 190 reports had been analyzed and it was apparent that patients were not benefited, the accumulation of more case reports seemed purposeless

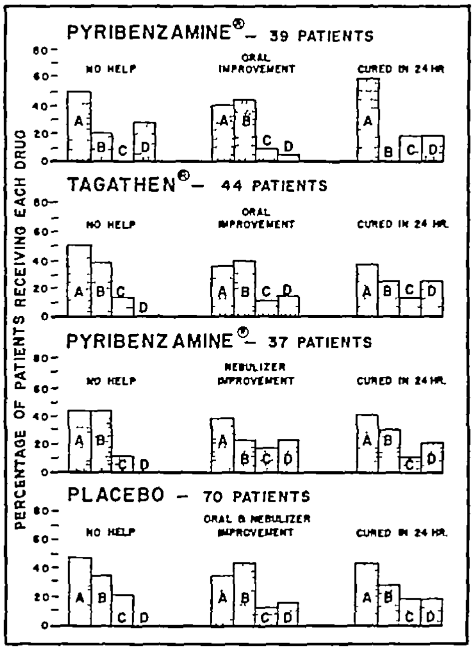

Fig 2—Relation of time of start of treatment to results obtained Group *A* represents patients whose treatment began within twenty four hours after initial symptoms were noted group *B* patients with treatment started between twenty four and forty eight hours after initial symptoms group *C* patients with treatment started between forty-eight and seventy two hours after initial symptoms and group *D* patients with treatment started later than seventy two hours after initial symptoms

CONCLUSIONS

1 The necessity of a carefully controlled clinical investigation of treatment of the common cold is again demonstrated, in this investigation 27 per cent of patients receiving inert materials reported cure within twenty-four hours

2 There was no significant difference in the proportion of cures reported by patients receiving oral antihistaminic drugs and those receiving oral placebos Furthermore, essentially the same proportion of patients reported no benefit from either type of treatment

3 Patients receiving antihistaminic drugs within twenty-four hours after symptoms began were as likely to fall into the no effect group as into the cured group

4 The effect of tripelennamine hydrochloride (pyribenzamine hydrochloride®) administered by nebulizer was essentially the same as the effect of inert materials given orally and intranasally

5 Although the use of antihistaminic drugs orally and intranasally may decrease the irritating nasal discharge characteristic of the early phase of the common cold, the brief and variable duration of this phase makes a positive conclusion regarding this point difficult

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OBSERVATIONS ON THE CLINICAL USE OF VISAMMIN (KHELLIN)

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The plant, Ammi visnaga Lam, known in Arabic as "Khella," grows wild in Arabia, Egypt and Eastern Mediterranean countries[1] Of the three crystalline compounds which have been isolated from the fruit of the plant,[2] visammin (also called khellin) has been claimed to have the greatest biologic activity[3] The pharmacology of this compound has been actively investigated[4] and has recently been summarized[1] Early investigators[5] have demonstrated the ability of visammin to relax smooth muscle in various organs in situ and in isolated structures such as the ureter Visammin has been found to be a powerful coronary vasodilator in animals, causing definite increase in coronary blood flow without demonstrable ill effect on the myocardium It is further characterized by the absence of development of tolerance, by a wide margin of therapeutic safety and by prolonged activity, since its gradual disappearance from blood and tissues results in cumulative effects[4]

The first report of the use of visammin in angina pectoris was made in 1945[6] Beneficial results were claimed for all 7 patients to whom the drug was given Later[7] it was claimed to have benefited 35 of 38 patients with angina pectoris and 8 patients with recent myocardial infarction and persistent precordial pain Insomnia, dyspepsia and cephalalgia were noted in a few patients The blood pressure, bleeding and clotting times and the pulse and respiratory rates were unchanged However, these studies were not well controlled, and the criteria for evaluation were not presented[8] Recently[9] visammin has been used in cases of bronchial asthma, and it is claimed to have improved vital capacity and reduced the incidence and severity of subsequent asthmatic attacks in 41 of 45 patients In 1948 Ayad[10] found that with the use of visammin anginal attacks were completely abolished in 14 of 23 patients, while decided improvement was noted in another 5 There were no untoward reactions, despite the necessity of using larger doses than are used in patients with angina pectoris Finally in 1948[1] the Egyptian group reported the cumulative results of the use of visammin in angina pectoris Distinct improvement was claimed in 140 of 250 cases and moderate improvement in another 85, only 25 patients failed to show any benefit These over-all promising results following the administration of visammin to patients with angina pectoris and bronchial asthma prompted us to investigate its potentialities in a controlled study

MATERIAL

Patients with the following diseases were studied

Angina Pectoris (14 Carefully Controlled Cases)—The diagnosis of angina pectoris was based primarily on a well documented typical history of precordial pain on effort or following emotional upset, with relief after rest or glyceryl trinitrate therapy The majority of these patients have been followed in the Cardiac Outpatient Clinic of Michael Reese Hospital for a number of years, which has permitted the characteristics of their anginal syndromes to be well delineated, particularly during evaluation of other medicaments for relief of anginal pain[11] In fewer instances the patients were made available for study by private physicians during hospitalization or as outpatients

Chronic Cor Pulmonale (8 Cases)—Far advanced intrinsic lung disease (long-standing bronchial asthma, emphysema and, occasionally, bronchiectasis) associated with diminished vital capacity, clubbing of the fingers and cyanosis was the common denominator for a diagnosis of chronic cor pulmonale in this group Right ventricular strain was established in most cases by electrocardiography Frank congestive heart failure was present in 4 patients

Acute Bronchial Asthma (21 Cases)—The diagnostic criteria for acute bronchial asthma were a history of repeated attacks of dyspnea not on a cardiac basis and the physical findings of diffuse musical rales, prolonged expiration and characteristic wheezing

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Sam Ehrlich Memorial Fellow (Dr Rosenman) and Dazian Foundation Fellow (Dr Fishman)

A preliminary report was made to the American Heart Association, Atlantic City N J, June 1949

From the Cardiovascular Department, Medical Research Institute, Michael Reese Hospital, Chicago (The department is supported in part by the Michael Reese Research Foundation)

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METHOD OF ADMINISTRATION AND FOLLOW-UP

The Egyptian group [1] has made definite recommendations as to dosage It has been suggested that because of the bitter taste of the liquid preparation, visammin ordinarily should be given in tablet form In severe cases of angina or asthma, initial doses may be given intramuscularly and then followed by tablet preparations The average oral dose is 100 to 300 mg daily When the desired effects have been obtained, the dosage may be decreased to a lower maintenance level In severe cases of asthma 200 to 300 mg is usually given intramuscularly This dose is repeated every hour or second hour as necessary and is then followed by daily maintenance with tablets

TABLE 1—*Effect of Orally Administered Visammin in a Controlled Group of Patients with Angina Pectoris*

						Average Number of Glyceryl Trinitrate Tablets Taken Daily			Effects of Treatment			
Case Age	Sex Color	Diagnosis*	Roentgenogram†	ECG ‡	Visammin Dosage (Mg) and Duration	Without Placebo	With Placebo	With Visammin	Without Placebo	With Placebo	With Visammin	Side Actions
1 70	M W	A S H D auricular fibrillation S.A P		C C.I	50 t.i.d 3 weeks	2-3		2-3	Severe angina	None given	No effect reported	Nausea
2 55	F W	A S H D hypertension A.P	L.V.E	L.H S	50-100 t i d 3 weeks	2-3		2-3	Moderately severe angina	None given	No effect reported	None
3 59	M W	A.S.H.D early heart failure hypertension A.P	Normal	L H S	50 b i d to t i d 13 weeks	1-6	±6	0	1-6 attacks daily	Same or worse	Excellent almost free of anginal pain after first week increased exercise capacity	None
4 45	M W	A S H D hypertension myocardial infarction A.P	Normal	Nonspecific	50 q d to t.i d 18 weeks	3-5	±2	1 3	3-5 attacks daily	Same as with visammin	Moderately improved attacks of pain reduced by over one-half exercise capacity unchanged	Somnolence insomnia
5 56	M W	A S H D S.A P	L.V E	C C.I.	50-100 t i d 8 weeks	5-10	5-9	0	Pain after walking ½ block	No effect	Excellent only few mild attacks definitely increased exercise capacity	None
6 47	M W	A S H D status anginosus	Normal	C C.I.	100 t i d 6 weeks	Many	Many with exertion	0	Severe frequent angina	No effect	Excellent entirely free of pain died suddenly at home no precordial pain before death	None
7 70	M W	A S H D Old myocardial infarction A P	Normal	C C I	50-100 t i d 6 weeks	Many	Many	0-1	Severe exertional angina	No effect	Excellent free of pain decidedly increased exercise capacity	Occasional insomnia
8 40	M W	A S H D S A P	Normal	C C.I.	50-100 t i d 9 weeks	6-10	±10	0-1	Able to walk less than one block without pain	No effect	Excellent almost free of pain decidedly increased capacity for exertion	None
9 59	M W	A S H D S.A.P	L V E	C C I	50-100 t i d 12 weeks	6-9	5-9	0-1	Frequent attacks with moderate exertion	No effect	Excellent almost free of pain angina only with definite exertion	Nausea
10 35	F W	I V S D healed bacterial endocarditis aortic stenosis status anginosus	L.V E	C C I	100 t i d 10 weeks	Many	0	0-1	Severe angina on even mild exertion	Remained free of pain §	Excellent status anginosus ceased after second dose almost free of pain despite normal activity decidedly increased exercise capacity	None
11 63	F W	A S H D S.A P with status anginosus	L V.E	C C I	50 q i d 8 weeks	8-11	0 for 2 weeks then ±8	0	Severe constant angina even at rest	Free of pain for 2 weeks then same as before §	Excellent ambulatory able to walk 1 block without pain almost free of pain	None
12 60	F W	A S H D A P with frequent attacks of pain	L V E.	C C.I	50-100 t.i d 12 weeks	None	None	0	Frequent pain in left arm and hand with stiffness of fingers	No effect	Excellent entirely free of pain former stiffness of fingers disappeared, able to use hand normally	None
13 62	M W	A.S H D hypertension moderately S.A P	L V E	Normal	50 t.i d 4 weeks	3-4	0	0	Moderately severe angina	Same as with visammin	Excellent completely free of pain despite intense emotional anxiety unchanged exercise capacity	None
14 66	M N	A S H D S A P with status anginosus	Normal	C C I	50-100 b i d to t.i d 40 weeks	±25	±25	0-4	Frequent attacks of pain with angina at rest	No effect	Excellent long periods without pain greatly increased activity permitted	Nausea constipation

* A S H D = arteriosclerotic heart disease I V S D = interventricular septal defect A P = angina pectoris and S.A P = severe angina pectoris
† L V E = left ventricular enlargement
‡ C C I = chronic coronary insufficiency L H S = left heart strain
§ Remained free of pain for varying periods while on placebo after period of treatment with visammin

In this study visammin[11a] was administered to the patients with angina pectoris and chronic cor pulmonale in the form of sugar-coated 50 mg. tablets, after meals. All other drugs were discontinued except glyceryl trinitrate, which was taken as necessary for the relief of precordial pain. Coated placebo tablets, identical in color, taste, shape and appearance with the drug-containing tablets were used alternately. In most instances there was an initial period of observation with placebo tablets as a means of evaluating the patient's psychic response to a new drug. The patients with acute attacks of bronchial asthma received a single injection of 100 to 200 mg. of visammin intramuscularly, without advance notice in the emergency room during the acute episode. The drug was administered in concentration of 50 mg. per cubic centimeter.

Table 2.—*Results of Visammin Therapy in a Case of Severe Angina Pectoris*

Dates	Visammin Dosage (Mg.)	Daily No. of Glyceryl Trinitrate Tablets Taken	Results
Control	None	About 25	Walks less than ½ block, severe pain with frequent status anginosus, drawn facies
11/1-11/5	100 t. i. d.	About 10	Significantly improved subjectively after first few days of treatment
11/5-11/21	150 t. i. d.	8-9	Attacks much milder and of much shorter duration
11/21-11/29	Placebo	24	Frequent severe pain preventing any activity after the first 24 hours
11/29-12/1	150 t. i. d.	4-5	Attacks much milder
12/1-12/27	100 t. i. d.	4-5	Walks 2 blocks without pain; no glyceryl trinitrate for 2 days
12/27-1/5	Placebo	20-30	Cannot understand why he feels so badly; frequent angina after first day
1/7-[illegible]	100 t. i. d.	2-3	12 days without glyceryl trinitrate; walks 2 blocks without pain
2/1-[illegible]/1	100 t. i. d.	0-5	"I feel better than in many years"
[illegible]/1-[illegible]/1	100 t. i. d.	0-2	Pain only rarely and for brief intervals
[illegible]/1-[illegible]	None	20-24	Almost constant angina after first day; confined to bed with pain
[illegible]/2-4/5	100 t. i. d.	0	Dramatically improved subjectively
4/5-4/20	50 t. i. d.	0-2	Continued improved status, walks 2 blocks or more
4/21-4/25	None	25+	Almost constant pain after first 24 hours without treatment
4/25-5/25	100 t. i. d.	0	No glyceryl trinitrate for 3 weeks; then ran out of medicine; frequent severe pain followed
5/25-6/10	Placebo	20+	Continued to be incapacitated because of angina
6/10-6/24	50 q. i. d.	3	Much improved after 2 days; able to exert himself significantly more; feels like a "new man"
6/25-7/25	50 t. i. d.	0-1	Almost completely relieved of pain

All patients being given the drug in tablet form were seen at weekly or biweekly intervals. Physical examination was performed at each visit and, on occasion, electrocardiograms and vital capacity determinations were obtained. Of necessity, questions as to the response to treatment were posed, but whenever possible, and particularly during the first few weeks of treatment, statements were elicited as to the effects the patient experienced while taking the medicament. In addition to a deliberate attempt by the observers to avoid suggestion of therapeutic gain, impartial physicians not associated with the study were allowed to interview the patients during the period of observations, and their opinions were included in the final clinical evaluation of each case.

CRITERIA FOR IMPROVEMENT

In the evaluation of the improvement of patients with angina pectoris, the criteria used were decreased number and severity of attacks, increased exercise capacity, decreased number of required glyceryl trinitrate tablets and increased general well-being as reported by the patient. In the patients with chronic cor pulmonale, diminution in respiratory symptoms, increased exercise capacity, increased general well-being as reported by the patient and lessening of cyanosis and dyspnea on physical examination were the guides in the judgment of improvement. In the patients with acute bronchial asthma, the criteria were decreased in respiratory distress and wheezing and diminution in rales in the lungs.

RESULTS

Angina Pectoris.—Improvement of the cardiac status was definite in 11 of the 14 cases of angina pectoris (table 1). Moderate improvement occurred in another case, but in the remaining 2 no benefit was obtained. In 4 instances the improvement persisted for a time after administration of the drug had been discontinued; this is attributable to the cumulative effects of the drug. In a few patients in this group no placebo could be given because of the severity of the illness, but they are included because of the dramatic unequivocal response to visammin. Side action occurred in 5 patients and consisted of nausea in 3 and insomnia in 2. Nausea prevented further use of the drug in 1 case.

A typical example of an excellent result was seen in the case of W. M. (case 14, table 1), a 66 year old Negro man with long-standing severe angina pectoris. He had been observed regularly in the Cardiac Clinic since 1942. His blood pressure was 145 systolic and 84 diastolic, and his pulse rate was 75. The heart was normal in size, and there were no murmurs. The electrocardiogram revealed chronic coronary insufficiency. Angina had been increasingly severe, and, during previous studies,[11] he was known to take 20 to 40 glyceryl trinitrate tablets daily. Status anginosus had occurred frequently and had led to hospitalization for resection of the cardiac sympathetic nerves. While this patient was awaiting surgery, our initial supply of visammin became available. His response to visammin was rapid and progressive. Not only was he spared surgical intervention but he was able to extend his activities. The number of daily glyceryl trinitrate tablets required dropped precipitously. His appetite improved, his despairing attitude resolved, and he became alert. He reported cyclic recurrence of severe pain during the many alternate courses of placebos. Throughout the period of observation the blood pressure and pulse rate were unchanged. Side actions consisted of constipation and nausea on the larger dosage schedules. Table 2 gives the details of the case.

Visammin was administered to 16 additional patients with angina pectoris, but their subsequent course could not be adequately evaluated. In 9 of these cases untoward side action occurred. One patient died of concomitant renal disease, and another died suddenly while receiving a maintenance dose of visammin. In this last case there were no premonitory symptoms and no precordial pain associated with the terminal episode, permission for necropsy was not granted Toxic reactions occurred in 16 of the total 30 cases studied and constituted a serious factor which limited the use of visammin Of the 10 cases in which administration was stopped because of the toxic reactions, nausea occurred in 8 (severe in 4), emesis in 1 constipation in 3, diarrhea in 1, dizziness in 4 somnolence in 1, vesiculopapular eruption with pruritus in 1 and urticaria in 1

[11a] In almost all reports visammin has been used to designate a mixture containing 70 to 80 per cent visammin and 20 to 30 per cent visnagin. This mixture has about 66 per cent of the biologic activity of pure visammin.[2] A similar preparation (eskel®) was used in this study, and was supplied by Smith, Kline and French Laboratories, Philadelphia. The latter have recently informed us that lately developed more precise methods of assay indicate that the 50 mg. tablets used in this and prior studies actually contain 40 mg. of active material and that 100 mg. ampuls contain only 70 mg. of active material.

Chronic Cor Pulmonale—In 8 patients with chronic cor pulmonale striking improvement was noted (table 3) The blood pressures and pulse rates were unaffected The improvement was characterized by relief of dyspnea, wheezing and other respiratory distress, decreased cyanosis, increased exercise tolerance and greatly increased sense of well-being The edema of 3 patients with heart failure disappeared during treatment with visammin. The significance of this observation is not known Toxic manifestations were observed in 1 of the 8 cases Typical of an excellent response was that observed in D D (case 8 table 3), a 50 year old white woman with bronchial asthma, bronchiectasis, severe emphysema and chronic cor pulmonale Her activity was extremely limited because of dyspnea Cyanosis, clubbing of the fingers and toes and diffuse wheezes and musical rales over both lung

Table 3—*Effect of Visammin on Chronic Cor Pulmonale*

Case	Age	Sex	Color	Clinical Diagnoses *	Physical Manifestations	Effect of Other Therapy and Placebo	Visammin Dosage (Mg)	Duration	Result After Visammin Administration
1	64	M	W	B.A E C C.P	Constant wheezing rales clubbing hepatomegaly	No effect from placebo	50 t.i d. to 100 q i d.	10 weeks	Excellent no wheeze cough or other respiratory distress few rales nausea on larger dosage
2	74	M	W	B A C H F E C C.P	Wheezing emphysema peripheral edema cyanosis	Poor response to digitalis and diuretics	100 t i d.	5 days	Excellent no wheezing rapid disappearance of edema
3	5[illegible]	M	W	B.A A S H.D C H.F	Wheezing cough dyspnea peripheral edema	Poor response to digitalis and diuretics	100 t.i d	6 days	Excellent dramatic relief of respiratory distress with completely normal respiration
4	65	M	W	B A E. C C.P	Wheezing clubbing constant respiratory distress	Poor response to epinephrine and other drugs	100 t.i d.	16 days	Excellent dramatic relief of respiratory symptoms no wheezing
5	19	M	N	B.A E C C.P	Wheezing cough clubbing cyanosis	No response to placebo relieved by frequent epinephrine spray	100 t.i d.	3 weeks	Excellent found epinephrine spray unnecessary no wheezing or coughing
6	60	M	W	B.A C H F E C C.P	Diffuse wheezes and rales clubbing cyanosis peripheral edema polycythemia	No effect from placebo	100 t i d	4 weeks	Excellent dramatic improvement with little respiratory distress definite lessening of cyanosis sudden coma and death 3 days after treatment stopped
7	60	M	W	B A A.S H D E C.H F	Wheezing weakness peripheral edema rales	Poor response to digitalis and diuretics	100 t.i d	16 days	Excellent edema rapidly disappeared definite improvement in respiration with absence of wheezes and dyspnea
8	50	F	W	B A Bronchiectasis E C C P	Wheezing cough dyspnea rales clubbing cyanosis polycythemia	Poor response to placebo and epinephrine	50-100 t.i d.	8 weeks	Excellent dramatic relief from cough respiratory distress and cyanosis definite increase in exercise capacity no coughing weight gain

* B.A = bronchial asthma A S H.D = arteriosclerotic heart disease E = emphysema C.H F = congestive heart failure C C P = chronic cor pulmonale

Table 4—*Effect of Single Intramuscular Injections of Visammin on Acute Attacks of Bronchial Asthma*

Case	Age	Duration of Asthma (Years)	Severity of Present Attack	Intramuscular Dose of Visammin (Mg)	Degree of Improvement	Time of Onset of Improvement (Min.)	Duration of Improvement
1	33		Mod Severe	200	Marked	3	About 1 hr
2	25	2	Mod Severe	200	Slight		
3	30	9	Mod Severe	200	None		
4	42	6	Mod Severe	200	Marked	5	About 45 min
5	3[illegible]	25	Mod Severe	200	None		
6	60		Mild	100	Marked	4	About 1 hr
7	44	14	Moderate	200	Moderate	15	1 hr
8	50		Moderate	200	None		
9	21		Moderate	150	None		
10		4	Moderate	200	Marked	5	About 1 hr
11			Moderate	200	Moderate	5	10 min
12	33	27	Moderate	200	Marked	5	About 70 min
13	32		Moderate	100	None		
14	[illegible]		Severe	200	Moderate	15	2 hr
15	40		Mild	100	Marked	3	1 hr
16	51	4	Moderate	200	Slight		
17	21		Moderate	200	None		
18	[illegible]		Mild	200	Marked	30	2 hr
19	23		Mild	200	None		
20	[illegible]		Moderate	200	Marked	5	45 min
21	22	5	Severe	200	Marked	5	About 1 hr

fields were present Only slight relief had followed postural drainage and bronchodilator therapy Table 5 depicts the striking results of visammin therapy in this case The vital capacity (1 2 L) remained unchanged throughout, and there were no reactions

Acute Bronchial Asthma—There was decided benefit to complete and prompt relief of wheezing and rales in 9 of the 21 patients with bronchial asthma, moderate relief in 3 and no observed response in 9 (table 4) Where improvement occurred, it was usually of only short duration Typical of an excellent response was that observed in a 22 year old Negro man (case 21, table 4) who was given 200 mg of visammin intramuscularly during a severe attack of asthma Within five minutes he was able to sit up and was definitely relieved The chest was entirely clear of wheezes and rales thirty minutes later, and severe wheezing which recurred one hour later was again relieved promptly but temporarily by another injection of visammin There were no untoward reactions from the treatment The blood pressure and pulse rate were unchanged except in the few instances in which the rapid pulse rate present during the attack slowed as the respiratory distress subsided Local pain at the site of injection occurred in 1 patient

TABLE 5—*Results of Visammin Therapy in a Case of Chronic Cor Pulmonale, Bronchial Asthma, Bronchiectasis and Emphysema*

Dates (1949)	Visammin Dosage (Mg)	Results
2/1-2/7	Placebo	No results, remained dyspneic and cyanotic
2/7-2/14	50 t i d	No results for 4 days, then dramatic relief of wheezing and coughing, gaining weight, able to walk without dyspnea for 2 blocks auscultation reveals complete absence of wheezes but moderate number of rales persist
2/14-3/23	50 t i d	Continued relief, my color is so much pinker", no wheezes heard, only a few rales present for first time in years, patient not awakened by coughing at 4 a m
3/23-3/30	100 t i d	Continued excellent relief only few rales heard cyanosis almost completely disappeared
3/31-4/15	50 t i d	Continued remarkable relief
4/15 and on	None	Recurrence of respiratory distress and cyanosis after 24 hours

COMMENT

The evaluation of the efficacy of a drug in the treatment of a disease such as angina pectoris, with its spontaneous natural cyclic variations,[12] is subject to many pitfalls The attempt has been made to avoid any error in judgment during the analysis[13] (1) by the administration of placebos alternately with the active drug, (2) by a comparison of the effects observed when no drug was given with those observed during administration of placebos, (3) by the use of patients who had been observed for several years, during which time the characteristics of their anginal syndrome had been well delineated, and (4) by giving considerable weight to the frequency of anginal attacks and to the number of glyceryl trinitrate tablets taken Our conclusions as to the value of visammin in angina pectoris are based primarily on the dramatic results obtained in the patients with unequivocal severe attacks

The composite results of therapy with visammin in the patients studied are depicted in table 6 The drug has been found to be of definite value in relieving the distress of a large number of patients with angina pectoris and chronic cor pulmonale The results were often dramatic In chronic cor pulmonale significant clinical improvement in respiration, exercise capacity, color and general well-being was noted in all cases The mechanism of the action of the drug in these cases is probably partly related to its bronchodilating properties It is worthy of emphasis that 3 patients with chronic cor pulmonale associated with congestive heart failure showed improvement in the peripheral signs of heart failure Consequently, heart failure in chronic cor pulmonale is not a contraindication to visammin therapy but actually appears to be a circumstance in which visammin might be beneficial The mechanism of its action may be either on the bronchi or directly on the myocardium or both This is being investigated further

The beneficial action of visammin in patients with angina pectoris varies in degree In a significant number, after oral administration of visammin, there was moderate to decided improvement with almost complete freedom from anginal pain, despite subsequent increase in activity This was best seen in patients with severe angina who required a large number of glyceryl trinitrate tablets daily Frequently, freedom from angina persisted for as long as two weeks after administration of visammin was stopped This is apparently due to the cumulative effects of the drug Some patients, particularly those with mild angina, showed no improvement with visammin, and others experienced similar relief while receiving the placebos

Far less impressive results were obtained in acute attacks of bronchial asthma treated with parenterally administered visammin Its bronchodilating properties were demonstrated by the prompt, and occasionally complete, remission of symptoms and signs in a few patients following intramuscular injection Unfortunately, in such instances, the beneficial action was usually only of short duration Thus, visammin by parenteral injection may be of value in severe cases of bronchial asthma which respond poorly to other therapeutic measures The effect of the drug administered orally to patients with bronchial asthma was not studied at this time

TABLE 6—*Summary of Experience with Visammin*

Diagnosis	No of Patients	No in Which Evaluation Was Possible	Side Actions		Improvement			Dosage (Mg)
			Number	No in Which Drug Had to Be Stopped	None to Slight	Moderate	Definite	
Angina pectoris *	14	14	5	1	2	1	11	50-100 b i d to t i d
Angina pectoris †	16	8	11	9		2	6	50-100 b i d. to t i d
Acute bronchial asthma	21	21	0	0	9	3	0	100-200 i m ‡
Chronic cor pulmonale	8	8	1	0	0	0	8	50-100 b i d to t i d

* Series of patients in which adequate evaluation was possible
† Series of patients in which only partial evaluation was possible
‡ Single intramuscular injection during acute asthmatic episode

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[12] Evans, W, and Hoyle C The Comparative Value of Drugs Used in the Continuous Treatment of Angina Pectoris, Quart J Med 2 311, 1933

[13] We have specifically attempted to avoid the administration of the drug with an "evangelistic" attitude, and we have attempted to have the patients spontaneously relate their experiences while taking both visammin and placebos Despite these precautions we feel that one is justified in claiming beneficial results in the treatment of angina pectoris only when there is a dramatic decrease in the incidence and severity of pain with drug administration and a decided increase in number of attacks and their severity with placebo administration or when no drug is given While similar precautions apply to acute bronchial asthma and chronic cor pulmonale, the problem in these conditions is simpler since more objective changes can be observed on which one may base judgment

At the time of writing the clinical value of visammin is limited by a high incidence of unpleasant side actions, such as insomnia, somnolence, light-headedness, dizziness, urticaria, constipation and, particularly, severe nausea (table 6). The present preparations of visammin, imported from Egypt, are known to contain various unidentified ingredients in small quantities in addition to the crystalline substance. Whether these side actions are due to the active substance itself, or to the impurities, will be known only when the latter are eliminated. The incidence of untoward reactions further appears to increase with larger and repeated doses. This is probably due to the cumulative effect.

Two patients with angina pectoris who were almost completely relieved while taking visammin apparently suffered myocardial infarction and death. Only vague premonitory symptoms preceded apparent infarction. This sequence of events poses the question of whether the increased activity following relief of pain led to the terminal accident or whether these patients died in the natural course of the affliction. A similar problem is posed by the patient with chronic cor pulmonale who died unexpectedly.

In brief, then, our study indicates that visammin is a useful drug in angina pectoris, in chronic cor pulmonale and, to a lesser extent, in acute bronchial asthma. Further studies are needed to more clearly define dosage and route of administration, to delineate indication and contraindication and to unravel the mechanisms of its action, especially its effect on the contractility of the heart in congestive heart failure. One of its serious disadvantages is the development of side actions, particularly with larger dosage, which limits its further use. Whether these untoward effects are due to the drug itself or to impurities remains to be determined.

SUMMARY

1. The action of visammin (khellin), a preparation of active principles obtained from the fruit of the plant, Ammi visnaga Lam, has been evaluated in cases of angina pectoris, chronic cor pulmonale and acute bronchial asthma under controlled circumstances. Dosage, mechanisms of action, toxicity and therapeutic efficacy are discussed.

2. Of 14 patients with angina pectoris treated with visammin, 100 to 200 mg. orally each day, a good response was obtained in 11, moderate improvement in 1 and no effect in 2.

3. Each of 8 patients with chronic cor pulmonale showed distinct improvement in respiratory mechanics, color, exercise capacity and dyspnea following the daily oral administration of 100 to 300 mg. of visammin.

4. Single intramuscular injections of 200 mg. of visammin resulted in significant improvement in 9 of 21 patients with acute bronchial asthma. The response was prompt, occurring within five or ten minutes, and was often dramatic but usually short-lived.

5. Untoward reactions to visammin were observed in 17 cases. These were nausea, constipation, light-headedness, dizziness, diarrhea, somnolence, insomnia, urticaria and dermatitis. The incidence of these reactions increased with larger doses.

6. The results indicate that visammin is a drug with definite therapeutic effects in angina pectoris, chronic cor pulmonale and, possibly, in acute bronchial asthma. Further studies of this drug are needed to more clearly define its clinical usefulness, its contraindications, its toxicity and the mechanisms of its action.

ADDENDUM

Since this report was submitted, another clinical study has appeared by Dewar and Grimson.[14] Favorable results were obtained in preventing angina of effort and the electrocardiographic changes that may accompany it in 12 patients tested.

THE CLINICAL APPROACH TO ALCOHOLISM

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ALCOHOLISM AS A DISEASE

A lawyer and his wife were watching the sun set across the Gulf of Mexico. He had had a busy practice that had gradually declined as his alcoholism had become more severe. During this interlude when he was abstaining from alcohol, his wife was feeling a sense of relief. As she watched the rich warm colors of the sunset, she said, "Doesn't it give you peaceful thoughts?" Almost angrily he turned on her. "I haven't had a peaceful thought in years!"

Those who enjoy good health often admire the patience with which chronic invalids bear, day in and day out, handicaps and suffering which well persons have been spared. It is difficult to imagine what life must be like to them, and often this leads to a superficiality in dealing with invalids which embitters them more than their direct distress. It is significant with respect to alcoholism that the fellow-feeling of those who have been addicted to it has demonstrated, through Alcoholics Anonymous, how limited the understanding of the excessive drinker has been. It is through this same means that recognition of alcoholism as a disease has been stressed. Disease is the concern of the members of the medical profession, and physicians generally cannot be too happy that their recognition of a disease as such has been somewhat tardy. Failure to recognize a disease means that one does not learn how to investigate its causes or discover how best it may be treated.

The definition of alcoholism as a disease brings it within the scope of clinical medicine and calls for the development of diagnostic and therapeutic methods. Before proceeding to discuss these, however, one may fairly ask whether the designation of alcoholism as a disease is literal or metaphoric. Is one dealing with *sick persons, or is one using the constructive attitude* which he has toward the sick to gain similar understanding for the alcoholic addict?

Perhaps if I hyphenate the word and make it dis-ease, the common indicators of illness will quickly be recognized. In health one enjoys an ease of feeling, or euphoria. One takes his teeth for granted until they start aching, one knows he is not well when the discomfort of cough, headache or other dis-ease draws attention to his health. Surely then the lawyer who exclaims "I have not had a peaceful thought in years!" is indicating the dis-ease from which he suffers

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[14] Dewar, H. A., and Grimson, T. A.: Khellin in the Treatment of Angina of Effort, Brit. Heart J. 12: 54, 1950.

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Another way in which disease manifests itself is by impaired function If one sprains an ankle, he quickly finds that it is no longer able to work for him as it had been until the time of injury The dys-function which had reduced the lawyer from his previous level of professional function and impaired severely the most important personal relationships in his life is readily apparent Perhaps physicians have been little aware of these aspects of the disease because another characteristic of some diseases has overshadowed them they implicate others and hence bring in a public health problem While one is caring for the patient with tuberculosis he also is aware that others could become involved Because one has worked for the patient and learned how his illness comes about, he is now able to use effective preventive measures—and the chief ones are carried out by the patients themselves One may say that effective public health measures have been discovered because he has considered the sick person first, and in doing research in order to treat him one has learned how others may be protected Whenever the physician finds himself against the sick person in order to 'protect the public interest, he cuts off at its source the study which will tell him what the actual danger is The educational centers of today are indications that at last physicians are mobilizing on a significant scale to encourage a constructive attitude toward those who are ill in this as yet little understood way Medical history relates that out of a willingness to help those who are afflicted comes a quest for the "know-how ' to help them, and out of that comes not only help for them but real public health A community is to be congratulated for its willingness to assist these sick citizens, whatever is invested in time, effort and funds will be fully repaid in the lives of many with whom trained personnel will work directly, and still more who will benefit indirectly I know little about economics but twenty years of medical practice have taught me this, health pays, and illness is always costly Any money invested in health brings rich dividends, the most important of which are in human values

THE NATURE OF THE DISEASE

"Isms" are much in evidence these days, but since alcoholism ends with "ism" I must consider for a moment what that suggests Alcoholism may be compared with plumbism, or lead poisoning When lead enters the system, it produces various harmful effects on the body, for example, anemia and nerve paralyses may result The dosage of lead, of course, has something to do with the extent of the damage In certain dosages, over a period of time, it is known that alcohol may have harmful effects on the body The study of alcoholism must then include what effects there are on digestion, the nervous system and the liver Not only will direct effects of alcohol be found, there will be effects from the nutritional disturbance that occurs both because solid foods are not eaten during drinking and because disruptions of social life occur, and the mode of life, self care and care by others are likely to be disturbed enough to produce other organic effects

There is nothing recent in the study of these conditions, medically it has always been recognized that alcoholism could produce disease, and the diseases produced have been well investigated Many advances in treatment have been made, so that the detrimental effects of excessive and prolonged ingestion of alcohol can be dealt with much more effectively today than ever before The newer concept is not that alcoholism produces disease, it is that alcoholism is a disease, to which these pathologic tissue changes are secondary

It is at this point that one must recognize a difference between alcoholism and plumbism Lead usually enters the human body in an accidental or occupational manner painters or those working with storage batteries may be exposed to lead if proper precautions are not taken Anyone discovering that such a risk exists promptly takes measures to avoid it With alcoholism the problem has an added factor, persons ingest it although they know that in the quantities used it will prove harmful to them There is little reason to question why plumbism occurs once the source of the tissue poisoning is discovered, but with alcoholism one has a big question to ask when he inquires why alcohol is used to excess Once it is in the system, one can determine on a chemical basis how alcohol affects tissues and their function, this effect is likely to depend on the pharmacologic effects of alcohol rather than on the reason why it was taken When one studies only the effects and tries to offset them without regard to the likelihood that causes are still operative and unchecked, he is far from the kind of understanding necessary for treatment and prevention

REASON FOR EXCESSIVE DRINKING

In health one tends to have not only ease but also balance in his living One eats—but not to excess, if he does, then the unhealthy result is obesity One exercises—but again, when one has had enough he quits There is a self regulation involved that keeps activities in reasonable bounds Too much of one activity may mean too little of another, all work and no play makes Jack a dull boy A balanced life, like a balanced diet, has many ingredients It is seldom difficult to discern that the life of the excessive drinker is lacking in healthy balance One is often inclined to ascribe this to the alcohol itself, with its action on the nervous system comparable to that of an anesthetic —on the highest or cerebral levels first, progressively working down to the vital centers in the medulla if enough is taken Still, this is explaining the phenomenon in terms of itself Certainly, a vicious cycle is set up when excessive drinking encroaches more and more on the personal, family, social and professional life of the patient However, if it is assumed that alcohol starts the cycle, one is then beset with the need to explain why it has this effect in one person and not in another and to attempt to determine the point at which one person may be labeled a heavy drinker and another an alcoholic addict From a clinical point of view, I wonder whether this has great usefulness, perhaps in preoccupation with this factor one may overlook other considerations with much more promising therapeutic outcome

One is justified in speaking of alcoholism as a disease, in the sense of internal medicine, for one refers to the tissue changes produced when alcohol is ingested in toxic dosage With regard to the more difficult problem of motivation, it is more correct to say that alcoholism is a symptom Certainly, symptoms can be exceedingly troublesome, but in themselves they are not diseases so much as they are indications that health is impaired Headache, cough and fever have in the past been considered as diseases, and the logical treatment with this level of diagnosis is suppression of symptoms. I have known of a patient who was given pills for headache for eighteen months, until it became unmistakably evident that the headache arose from a brain tumor. Patients who are given cough syrup but who happen to have tuberculosis are not helped thereby; in fact, the serious risk of such superficial "treatment" is that the underlying condition is missed and goes on unchecked. Physicians do not group together all the patients who cough as "coughers", the patients have one symptom in common, but a textbook on differential diagnosis would list dozens—even hundreds—of diseases of which cough may be a symptom. When one considers why alcohol is taken to excess, he finds not one answer but many. The study quickly becomes related to the individual with whom one is dealing.

It is difficult to fit everyone with a tailor-made suit, even in a large city there would be nowhere near enough tailors to complete the project. The problem is met by trying to have ready-made suits of varying sizes and shapes that approximately fit each person and then by tailor-making the alterations. Attempts at classification of alcoholic addicts represent a necessary effort to simplify a large problem, for no two persons in the world are identical, and when one speaks of studying each person individually he is almost forced to bring to the task some preformed conceptions. One should be careful what these are. Modern psychiatry has shown that centuries of effort to understand psychiatric patients have left clinicians baffled largely because attempts were being made to describe persons in a static way—a description of them as they appeared in cross section, rather than an attempt to understand them in a living, growing, changing way as they live their lives in an everchanging environment. To study a person as one sees him at a given moment is like taking a still picture of an airplane in flight or watching one scene in the middle of a movie without knowing what has preceded it. In further efforts of the physician to understand the patients he is trying to help, I hope he will learn about them as persons rather than try to fit them into systems of classification that must be too limited for the great variety of human make-up and experience and that is of little practical help in treatment.

I shall avoid the temptation to devote my clinical effort to categorizing and again consider the lawyer who had not had a peaceful thought in years. He gives one a glimpse of an inner discomfort that must be hard to bear. Had he said that he had had weeks and months of pain, one would not be surprised to find that he tried to do something to relieve the pain. I once got a toothache suddenly while interviewing a patient. I tried to ignore it and carry on, but the pain just would not be ignored; it called imperatively for action. I found it necessary to interrupt the interview and seek the dentist. Certainly that inner discomfort was a symptom, I might have gone to the dentist and had the tooth fixed before it ached. But it was the symptom, not its cause, of which I was strongly made aware.

A toothache fairly directly informs one what needs to be done to restore comfort. Going to the dentist is an efficient way of dealing with such inner distress. Had there not been a dentist available, the distress would still have persisted. If nothing else, it would have impelled me to walk the floor, and perhaps I might have been observed taking some acetylsalicylic acid, hoping thereby to suppress the symptom. That is not an efficient way of dealing with toothache, and when the effect of the drug wore off I might have had to take more. An observer, who could not have known unless I told him that I had pain, might have thought I was taking the drug because I liked it and warned me that I might become addicted to this compound. If instead of taking acetylsalicylic acid I took a sedative, such as codeine or morphine, which had a stronger effect but also some undesirable side effects, these side effects in time might have become more detrimental to my health than the original decayed tooth. If among these side effects the drug taken also happened to increase the local disease state, then my plight would be that much the worse.

It is apparent, then, that the lawyer had inner discomfort and that it had persisted, like the toothache, it would not be ignored. Perhaps he had not found someone corresponding to the dentist who could get at and eliminate the primary disturbance and, lacking this efficient solution, had had to resort to something for relief. Perhaps alcohol in its narcotic effect lessened the immediate distress. The first stage of the action of any narcotic or anesthetic agent is the production of analgesia—a reduction of the sense of pain. Beyond that, it produces a paralysis of higher brain levels and hence a release of lower functions, uncontrolled by the higher, then the stage of excitement begins. If still more is taken, coma or unconsciousness is produced. The need to continue such a temporizing solution is not hard to see, if the inner discomfort is severe and persistent, and sometimes the patient himself recognizes the futility and tries to check it, but if his statement of inner unrest is accepted, something fundamental has to be done before health and ease are restored. The physician is now confronted with the need to determine just what the inner ill-at-easeness may be that can call for such pseudorelief. The problem is the more urgent because alcohol does have side effects which in many instances may intensify the original disturbance by damaging personality assets and often alienating the support of those who cannot understand why the inner unrest exists—or who do not even recognize that it is there.

ORIGIN OF THE DIS-EASE

The inner distress has been compared to a pain, but it is not that. A toothache at least informs the victim of the source of his troubles, but pain is not the only sensation that may be hard to bear. Everyone has known the sensation of fear, of apprehension, of "intolerable suspense," in relation to personal situations. When any of these is felt, one is aware of being most uncomfortable. However, this has not been mystifying because the situation occasioning such a reaction is known. Even so, with such uncomfortable feelings it is hard for one to stay still. Expectant fathers think they have a much harder time than do their wives. If one recalls his feelings in some tense situation in the past, he will know how ill at ease he felt, then let him go one step further and realize that sometimes just such feelings are experienced without any realization of their origin, and he will have some awareness of the nature of anxiety. If anxiety is sustained and its source cannot be traced, the person experiences not merely the distress but the helplessness that comes from dealing with an unknown rather than a known danger.

Aesop told a fable of the lion and the gnat The lion roared his defiance to the jungle, and the bear accepted the challenge, only to rue his decision quickly Then the elephant came, and his bulk and strength prevailed not against the mighty lion The tiger ventured into the fray, tough though the battle was, the lion emerged victorious At this the other animals held back, and the lion roared his defiance to any living creature Then a tiny gnat flew into the lion's nostril and the mighty animal roared to a different tune, he was rendered helpless by an insignificant gnat because he could not get at it The patient with anxiety is not afraid, he often has shown great courage in facing difficulties, of which a life study will usually show that he has had plenty, but now he finds himself the victim of something he cannot get at His distressed reaction to this force, invisible from the outside and inaccessible to him, seems irrational to others Tiring of telling them that he is bothered—because they all assume that the only annoyances one can have are due to outside forces—he has to do the best he can

Anxiety is not so much an alarm as a false alarm The fire department can rush off to extinguish a fire, but when a call comes and there is no one able to locate a fire, the upset is great When there is a false alarm, someone must have turned it in When a patient with anxiety is told that there is nothing wrong with him, that it is just his imagination, he is being given as little help as is the fire-department when it is told that false alarms do not matter The sense of unknown danger is more disturbing than that of known danger

ORIGIN OF THE DANGER

When an acquaintance appears bothered, one is apt to ask "What are you worried about?" Behind this is the assumption that men are like machines, reacting according to the way they are stimulated Certainly, one responds with concern proportionate to the seriousness of a situation that confronts him, a physician's concern must match the severity of the illness with which he is dealing But it is a mistake to assume that all emotional reactions are immediately reactive

Emotions are much more complex than that, and *many times a person* has decidedly mixed feelings Present feelings may relate to past rather than present events, or present situations may merely serve to touch off the memory of earlier troubles in one's life When a primitive man became angry with another, he could deal with his angry feelings by fighting and killing the other man In organized society, the greater danger to a man in a fight might be not so much that he would be hurt as that he would kill the opponent, thus running afoul of a much greater danger One's own impulses can represent dangers if they are of a nature whose expression might be damaging to others or to one's self, and often one's own feelings are much harder to deal with than are other persons Strong feelings of different sorts may conflict within, and it is from such conflict that anxiety may arise When one adds to this that such conflicts sometimes can take place at deep levels within the person, so that he scarcely knows they exist, it is not difficult to realize that only the effects of the conflict may be experienced hence, there is anxiety with its source mystifying to the patient as to others It is then a matter for treatment to ascertain what the difficulties are by helping bring them up to a level where they can be recognized and resolved

Persons are inclined at times to ascribe "worry" to impersonal matters—weather, work, business conditions and the like Shakespeare wrote

> Blow, blow, thou Winter Wind—thou art not so unkind
> As Man's ingratitude

Strong feelings are usually related to people, so that the most likely origin of intense emotional reactions is in reaction to personal experiences The quest for the origin of anxiety then takes the physician *into* a study of the man who is sick rather than of the sickness the man has In studying him, his important interpersonal relationships often afford clues to difficulties in his earlier life, which often may be overlooked if the physician is descriptive rather than dynamic in his approach Perhaps the secondary complication of personal relationships that occurs when alcohol is used excessively has obscured some of the primary problems of personal adjustment which led to the development of anxiety Again, although gross interpersonal difficulties in childhood and later will be found at times but sometimes may not be apparent, one needs to work from the person toward the situation rather than vice versa Arithmetic may be hard for one child, easy for the next It is not so much in a situation as in its meaning to the person that the physician finds clues to the development of interpersonal and personal difficulties

CLINICAL STUDY

From the foregoing considerations it will be apparent that no simple and short method can be offered for working out the problems involved in alcoholism There are many aspects, and no one is equally facile in dealing with each of these, hence physicians need to team up and to pool their resources The establishment of centers such as that in Rochester, N Y, and the University of Buffalo Information and Rehabilitation Center is a move in this direction As alcoholism is a disease, there is need for a constructive attitude toward those afflicted with it, as it is a symptom, there is need to survey the patient's life and relationships as well as his bodily health As it is a dis-ease, the physician must learn in therapy how to offer real relief rather than leave the patient at the mercy of his anxieties, with his inner conflicts undetected and unresolved As anxiety impairs function, one must help toward restoration of his life in whatever ways possible As the difficulty often involves others, one needs to work with a public health objective As the basic difficulties in many instances relate to unsatisfying and unsatisfactory human relationships, one must be careful not to deal with the problem as if it existed in the patient alone As more cases are constantly being added to the already alarming total, there is need to develop a constructive mental hygiene program so that there will not be those in the future who go on to such advanced stages of personal difficulty because of inactivity of members of the medical profession today

A community that is prepared to face the problem of alcoholism adequately soon finds that many resources are required It is apparent that the organic changes will need investigation and care and that internal medicine has an important role Often little more than verbal recognition of the problem has been provided in any organized way, and such an approach is pitifully inadequate If alcoholism is considered a symptom, it will be recognized that study of the problems behind the presenting problem may lead investigators *in almost* any direction and that only a community with an alert interest in many kinds of personal and social difficulty will be prepared to follow up these leads The many-sidedness of the problem calls for teamwork and through such teamwork modern psychiatry is finding that it can be most effective

A community center serves as a coordinating and educational headquarters for an organized approach to the medical, psychiatric, social and public health aspects of the patient's illness The acceptance as a person and the possibility of finding real help are important early experiences for the patient coming to the center Often he is in poor physical condition and requires organic examination, facilities need to be available for this and for temporary hospital care Through concerted efforts hospitals which previously closed their doors to the excessive drinker are persuaded to accept him as a patient The damaged self respect of the patient begins to revive under the influence of the worth-whileness that others find in him

The foregoing discussion of anxiety makes it clear that there is no one kind of trouble for which excessive drinking may be used in a vain effort to find inner ease any more than there is any one kind of pain for which acetylsalicylic acid or codeine may be taken The psychiatric study calls for the psychiatrist, particularly one with experience in problems at the community level, to evaluate the kind and degree of personal disturbance and the manner in which treatment can be given The psychiatrist is not nearly as effective alone as he is as part of a full psychiatric "team"—psychiatrist internist, social worker, psychologist, receptionist and, for inpatient work, the psychiatric nurse All of them need the same approach to the patient, yet each has a specific function Added to these are other workers in various cases—clergymen, judges, social agencies and the like—whose combined efforts can bring about results that no one person can achieve In the community there are already many who have played an active role in combating alcoholism, and particular credit here should be given to the pioneering efforts of Alcoholics Anonymous There is a medical-psychiatric phase to the problem which is beyond their lay skill, but they have shown that they have an important function which the professional team cannot perform It is a matter of working together for a common objective It is becoming apparent that psychiatrically directed group therapy has a useful function for certain patients, and experience in it often is carried back to individual meetings of Alcoholics Anonymous

All phases of medical practice today are working at the preventive aspects of alcoholism When troubles are obvious, diagnosis is easy but treatment is difficult Although early treatment is relatively easy, diagnosis then is difficult Those concerned with this problem must expect at first to work hard for results, because knowledge and understanding will be slow in coming but the whole history of man's fight for health and against disease shows that with determination to care for the sick and to keep working in their behalf gradually a comprehension of their needs grows Out of the understanding of sickness comes a realization of what health is When that is known, effective prevention becomes possible The community that faces the problems of alcoholism squarely is making a sound investment in the health and happiness of all its citizens

24 High Street (3)

ESOPHAGEAL HIATAL HERNIA

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During the fifteen year period from Jan 1 1934 to Jan 1, 1949 we observed as both inpatients and outpatients at the Jefferson Hospital Philadelphia 110 patients with esophageal hiatal hernia It is the purpose of this report to present an analysis of this group of patients with particular reference to the problems of diagnosis and the indications for surgical therapy Only patients with true esophageal hiatal hernia were included in the report, those patients with a congenital shortening of the esophagus were excluded No significant sex predilection was noted in this series There were 59 women and 51 men

Esophageal hiatal hernia is primarily encountered in middle and later life, although the symptoms may begin in childhood when the hernia is congenital in origin In this series of 110 cases, the youngest patient was 29 years of age and the oldest 78 There were 78 patients between the ages of 50 and 70, 40 patients between 60 and 70 and only 7 patients less than 40

TABLE 1—*Duration of Symptoms in 110 Patients with Hiatal Hernia*

Months	No of Cases	Years	No of Cases
Under 3	12	1	21
3-6	8	2	20
6-9	5	3	8
9-12	2	4	6
	—	5	10
Total	[illegible]	6	2
		7	1
		10	4
		12	4
		15	1
		18	2
		20 or over	4
			—
		Total	[illegible]

SYMPTOMS

Harrington[1] has termed esophageal hiatal hernia the "masquerader" of the upper part of the abdomen The amount of mechanical interference with the function of the herniated viscus, the degree of diaphragmatic dysfunction and the amount of increased intrathoracic pressure determined the type and number of symptoms Instead of the many symptoms that usually are present, there may be none In this series 3 patients were symptomless In more than three fourths of the cases the symptoms had been present longer than a year in 27 cases the duration was in months (table 1) The majority of patients in the group whose symptoms had lasted for years had been under medical care during this entire period without having had a correct diagnosis of the condition

The outstanding primary symptom was dysphagia, which occurred in approximately one half of the cases (56) Pain was the initial complaint in 23 cases and

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[1] Harrington S W Surgical Treatment of the More Common Type of Diaphragmatic Hernia Ann Surg **122** 46 (Oct) 1945

digestive disturbances classified as indigestion occurred in 12 cases Other primary symptoms in the order of frequency, were regurgitation lodgment of food, hemorrhage weakness, loss of weight and hoarseness The majority of patients had several complaints, but again the most common were dysphagia (62 cases) and pain (58 cases) Therefore when these two symptoms are present esophageal hiatal hernia must be seriously considered (table 2) There was difficulty in swallowing both liquids and solids but, commonly, solid foods gave the most distress the patients finding it necessary to take small amounts of food at frequent intervals

TABLE 2—*Incidence of Symptoms in 110 Patients with Hiatal Hernia*

Symptoms	Patients with Symptom as a Primary Complaint	Total No of Patients with Symptom
Dysphagia	58	62
Pain	2	58
Regurgitation	[illegible]	30
Weight loss	[illegible]	23
Indigestion	12	20
Vomiting	0	13
Lodgment of food	[illegible]	11
Gastrointestinal hemorrhage		9
Weakness	2	3
Cough	0	2
Hoarseness	1	1
No symptoms		3

Pain in some locality was a prominent symptom The extent character and location of the pain was variable In some cases it was in the chest either precordial or radiating upward in the shoulder or downward into the abdomen In other instances food intake initiated an attack of epigastric pain which usually came on during or after a heavy meal and was relieved by belching or vomiting The pain was not constant but came in attacks which varied in duration from a few minutes to hours The attacks were mild and spaced at infrequent intervals in the early stages but, as the stomach became fixed by adhesions in the thorax, the attacks became more constant and more severe Four patients were treated for coronary thrombosis because of the severe radiating precordial pain, relieved only by opiates Phrenic pain referred to the shoulder top and at times projecting down the arm was associated with spasm of the diaphragm

Loss of weight was present in 23 patients, this was attributed to the restriction of diet which was practiced by most of the group and to vomiting, which occurred in 13 cases Twenty patients complained of indigestion which took the form of gas, belching or epigastric fulness after meals Sensation of food lodgment was a symptom in 11 patients many of whom complained of food sticking in the neck region Large quantities of fluids were taken with meals in order to relieve the feeling of impacted foods Hemorrhage was encountered in 9 cases and was manifested both by hematemesis and melena Ulceration at the esophagogastric junction was found to be the cause In 3 cases the bleeding was severe, and 1 of these patients required repeated blood transfusions The weakness which was present in 3 cases was associated with shortness of breath and may have been due to cardiac embarrassment from increased intrathoracic pressure and restricted diaphragmatic movement Respiratory symptoms were not common, occurring in 3 patients, 2 of whom complained of cough and the third of hoarseness

DIAGNOSIS

Two means of diagnosis are available, roentgenography and esophagoscopy Both methods should be used for one supplements the other In this series the diagnosis was made by both roentgenographic and esophagoscopic examination in 97 cases In the remaining 13 cases the diagnosis was made by esophagoscopic examination alone In no cases were the lesions found roentgenographically and not esophagoscopically The roentgen findings in the 13 cases in which the lesions were diagnosed by esophagoscopy alone were normal 6, achalasia 3, carcinoma 2, and esophageal diverticulum, 2

Stenosis can be determined equally well by either method, and in this series the condition was found by roentgen examination in 16 cases and by esophagoscopic examination in 18 cases In 1 patient stenosis was revealed by roentgen examination and not esophagoscopically The stenosis varied, consisting of either a funnel-like narrowing an abrupt constriction or a weblike stricture

In roentgenographic diagnosis the esophagus and stomach must be viewed from many angles to determine the position of the lower end of the esophagus Films made with the patient in the recumbent position were frequently necessary to outline the esophagogastric junction in relation to the diaphragm, for in reducible hernia the stomach may assume a thoracic position only when the patient is recumbent The diagnosis became certain when gastric rugae could be demonstrated above the level of the diaphragm

TABLE 3—*Errors in Previous Diagnosis in 35 Patients with Hiatal Hernia**

Previous Diagnoses	Patients
Carcinoma	[illegible]
Achalasia	[illegible]
Duodenal ulcer	4
Coronary thrombosis	4
Cholecystitis	2
Gastric ulcer	2
Indigestion	2
Foreign body	2
Esophageal diverticulum	2
Gastrointestinal hemorrhage	1
Anemia	1
Multiple diagnoses	—
Total	35

* Some patients had multiple lesions—cholecystitis with or without gall stones, coronary artery disease, duodenal ulcer or traction diverticulum This group is not included in this table

The esophagoscopic diagnosis was dependent on the anatomic demonstration of a portion of stomach above the diaphragm relaxation of the esophageal mucosa and absence of the normal "pinchcock" action at the hiatus

Esophagoscopy was superior to roentgenography in determining the presence of ulceration Ulceration could be demonstrated in 39 patients by esophagoscopy while in only 5 was the diagnosis made roentgenographically The ulceration varied from a small area to extensive involvement of the entire esophagogastric junction The ulcerations were superficial and covered by exudate, and granulations when present were usually flat Histologic examination of the ulcers commonly revealed superficial ulceration of gastric mucosa but persistent ulceration required repeated histologic examinations to rule out malignant change

TABLE 4—*Treatment or Recommendation in 110 Patients with Hiatal Hernia*

		No of Cases
Medical		[illegible]
Esophagoscopic		40
Surgical procedures recommended		4
Surgical procedures performed		[illegible]
Phrenic exeresis	[illegible]	
Transabdominal		
Transthoracic		
	[illegible]	

ERRORS IN PREVIOUS DIAGNOSIS

Errors in previous diagnoses were common (table 3) Many of these patients had had more than one clinical diagnosis and operations were performed on some without relief A few patients had more than one lesion cholecystitis with or without gallstones coronary artery disease duodenal ulcer or traction diverticulum of the esophagus In a study of 404 patients with esophageal hiatal hernia operated on by Harrington[1] it was found that an average of three previous erroneous clinical diagnoses had been made before the correct diagnosis was established In this group of 110 patients 35 had had previous errors in diagnosis This excluded the group of patients with multiple lesions

These errors varied widely ranging from coronary artery disease to foreign bodies in the esophagus As one would expect, twenty-seven of the thirty-five incorrect diagnoses were of other lesions of the gastrointestinal tract Only fifteen of these supposed lesions were located in the anatomic region of the esophagogastric junction In a number of these patients hiatal hernia had been suspected, but roentgenographic study was reported as showing normal conditions These errors may have been due to the neglect of the physician in not requesting the radiologist to definitely look for hiatal hernia

The mistaken diagnosis of coronary artery disease posed a definite problem in those patients in whom surgical procedures were being considered A cardiologist must be cognizant of this simulation in order to exclude cardiac disease which might contraindicate surgical repair The most common error was a diagnosis of carcinoma One should always investigate this possibility completely, but an erroneous diagnosis of cancer should not be imparted to the patient

INDICATIONS FOR SURGICAL INTERVENTION

Most patients with hiatal hernia do not require surgical intervention (table 4) Definite indications for surgical repair have not yet been standardized In patients under age 55 whose symptoms are progressive and/or whose hernias increase in size as measured by the amount of stomach above the diaphragmatic level we believe surgical intervention is indicated These hernias are progressive in that they tend to increase in size This younger group should have the benefit of repair when they are in good physical condition These patients are usually excellent surgical risks When one third of the stomach is above the diaphragm conservative measures seldom give relief

Severe and recurrent hemorrhage from chronic or recurrent ulceration either of the lower end of the esophagus or of the gastric pouch is an indication for surgical treatment Minor bleeding which is not recurrent may be treated conservatively

Incarceration or threatened strangulation diagnosed chiefly from the symptoms is a third indication for surgical repair The pain becomes constant with an increase in severity Vomiting which persists and does not give complete relief may occur Hemorrhage may be seen not usually of severe grade Temporary relief has been obtained by intubation of the gastric pouch and constant suction but recurrence of the symptoms is to be expected

Carcinoma of the esophagus or stomach occurring in patients with hiatal hernia is seldom mentioned One patient in this group had a squamous cell carcinoma of the esophagus within 4 cm of the esophagogastric junction

TREATMENT

The majority of patients can be relieved symptomatically by medical or mechanical treatment or both In this series medical and mechanical treatment was used in 76 cases (69 per cent)

The medical treatment comprised a bland low-residue diet thorough mastication elimination of bulky foods and swallowing of small amounts at a time Liquids taken with a meal aid in washing down the food bolus particularly if there is a tendency for stagnation to occur at the site of the herniation Postural measures to encourage the passage of foods were also advocated and the patient usually improved when the semirecumbent position was used for sleeping Reclining after meals was detrimental and a sensation of epigastric fulness often followed relief was afforded by assuming the erect position Constrictions around the abdomen tended to increase the intra-abdominal pressure and intensified the symptoms

Antispasmodic drugs and alkalis were used to relieve pain by counteracting the gastric acidity in the lower end of the esophagus from the incompetent hiatus Sodium bicarbonate aluminum hydroxide phenobarbital and belladonna, alone or in combination were most often employed and were more effective when ulcerations were present Alkalis may be taken before or after meals following the approved regimen for peptic ulcer

The principles involved in mechanical treatment are relief of obstruction by dilatation and treatment of ulcerations by topical applications Relief can be afforded by endoscopic procedures and patients were carried along by this means for many years some requiring treatment only two or three times a year Dilatation of obstruction was done either esophagoscopically or perorally by passage of olive-tipped bougies over a previously swallowed string When the chief difficulty was obstruction alone repeated peroral bouginage over a previously swallowed string has enabled patients to get adequate nourishment with freedom from dysphagia The frequency of the dilatation depends considerably on the type and severity of the constriction and dilatation should be employed often enough to maintain an open esophageal channel

In cases of ulceration treatment must be performed esophagoscopically so that the ulcerated areas may receive local treatment In some cases ulcerations were persistent requiring frequent treatments Care must be taken not to employ too strong an alkali or acid for fear of producing contracture and stenosis with healing of the ulceration Silver nitrate (10 per cent) has been adequate to promote healing After healing has occurred ulcerations sometimes return with dietary indiscretions and failure to follow medical treatment

In patients requiring surgical procedures repair of the defect is the treatment of choice In this group of patients 34 or 31 per cent were advised that surgical intervention was indicated Of these 16 were operated on Eight patients who were poor operative risks had phrenic exeresis under local (1 per cent procaine hydrochloride) anesthesia Eight had repair of the defect in the diaphragm with replacement of the stomach into the peritoneal cavity Surgical repair of esophageal hiatal hernia has been described in full by Harrington[1] who used the abdominal approach In 5 of these patients the surgical approach was through the abdomen and in 3 through the left side of the thorax We have had no experience with the method of transferring the esophagogastric junction into a new location and obliterating the hiatus completely as described by Merendino Varco and Wangensteen

SUMMARY

1 A series of 110 cases of esophageal hiatal hernia observed during a period of fifteen years, with emphasis on diagnosis and indications for surgical treatment has been reported

2 Esophageal hiatal hernia should be considered in patients with vague indeterminate symptoms in the lower part of the chest or the upper part of the abdomen There is no characteristic clinical picture and cardiac respiratory or other gastrointestinal diseases may be simulated The combination of dysphagia and pain in some location should suggest the diagnosis

3 Errors in previous diagnosis were common among patients in this series An important factor in the diagnosis is the use of both roentgenography and esophagoscopy In this series the majority of diagnoses were made by both methods, however in 13 cases the diagnosis was made by esophagoscopy when the roentgenograms were not conclusive or suggested other conditions Although stenosis was determined equally well by either method ulceration at the esophagogastric junction was detected more often by direct visualization

4 Conservative treatment (medical and mechanical) was carried out in 69 per cent and surgical treatment in 31 per cent of the cases in this series Although the majority of patients can be successfully treated by conservative measures, some patients require surgical treatment when certain indications are present

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2 Merendino K A Varco R L and Wangensteen, O H Displacement of the Esophagus into a New Diaphragmatic Orifice in the Repair of Para-Esophageal and Esophageal Hiatus Hernia Ann Surg **129** 185 (Feb) 1949

Pharmacists —Physicians should recognize and promote the practice of pharmacy as a profession and should recognize the cooperation of the pharmacist in education of the public concerning the practice of ethical and scientific medicine —Section 3, Chapter IV of the Principles of Medical Ethics of the American Medical Association

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USE OF DIETHYLSTILBESTROL IN ORCHITIS DUE TO MUMPS

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Beyond the age of puberty involvement of the sexual glands as a complication of epidemic parotitis, particularly in the male, occurs in 18 to 35 per cent of cases About 80 per cent of these involvements appear during the first eight days of mumps A few occur a considerable time after the epidemic parotitis has subsided Little difference in the incidence of epididymo-orchitis is noted whether the patient is confined to bed or permitted to walk about during convalescence[1] The onset is usually characterized by recurrence of fever, decided pain in and swelling of one or both testicles

In 1912 G G Smith[2] and in 1942 Wesselhoeft and Vose[3] recommended incision of the tunica albuginea testis to prevent pressure atrophy of the testicles and consequent loss of spermatogenic function In the past few years several authors have tried a more conservative approach for prophylaxis and treatment of epididymo-orchitis, using pooled normal plasma and gamma globulin from convalescent mumps serum Gellis, McGuiness and Peters[4] reported good results with gamma globulin derived from mumps convalescent serum The other reports[5] are not convincing

In 1941 and 1942 Charles Matthews and co-workers[6] published a series of articles on the effect of diethylstilbestrol on the testicles The endocrine substance may affect the testicles by at least two mechanisms The first possibility is that of a direct action of the substance on the organ, producing an inhibitory effect on spermatogenesis The effect of diethylstilbestrol on the pituitary gland offers a second possibility whereby the testicles may be affected Since the testicle is thought to be under the control of the pituitary, any treatment which would affect the gonadotropic function of this gland might cause atrophy of the testicles However, Matthews and associates demonstrated recovery of the reproductive system of the male rat within an average of 47 5 days after regressive changes had been induced by diethylstilbestrol

Encouraged by these experimental results, studies have been made to evaluate the applicability of diethylstilbestrol in orchitis due to mumps Savran[7] in 1946 reported studies on 77 patients receiving diethylstilbestrol, with 168 patients as a control group Of those treated, orchitis developed in 3 after admission, an incidence of 3 9 per cent, while among the untreated patients orchitis developed in 28, or 16 6 per cent The treatment consisted of 1 mg of diethylstilbestrol administered three times daily, in subsequent patients the dose was increased to 1 mg four times daily, follow-

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From the Kingston Avenue Contagious Disease Hospital service of Dr Kenneth G Jennings

[1] Nelson W E Textbook of Pediatrics Philadelphia W B Saunders Company 1946

[2] Smith G G Two Cases of Orchitis Due to Mumps Treated by Operation Boston M & Surg J **167** 323 (Sept) 1912

[3] Wesselhoeft C and Vose, S N Surgical Treatment of Severe Orchitis in Mumps New England J Med **227** 277 (Aug) 1942

[4] Gellis, S S McGuiness A C and Peters, M A Study on the Prevention of Mumps Orchitis by Gamma Globulin Am J M Sc **210** 661 (Nov) 1945

[5] Candel S Wheelock M C and Grimaldi G J Mumps Orchitis U S Nav M Bull **45** 97 (July) 1945 Rambar A C Mumps Use of Convalescent Serum in the Treatment and Prophylaxis of Orchitis Am J Dis Child **71** 1 (Jan) 1946

[6] Matthews C S Emery F E, and Schwabe E L Regressive Changes in the Reproductive System of Male Rats Induced by Stilbestrol, Endocrinology **28** 761 (May) 1941 Matthews, C S, Schwabe, E L and Emery F E Studies on Recovery of the Reproductive System of the Male Rat from Regressive Changes Induced by Stilbestrol, ibid **30** 89 (Jan) 1942

[7] Savran, J Diethylstilbestrol in the Prevention of Orchitis Following Mumps Rhode Island M J **29** 662 (Sept) 1946

ing which none of the patients had orchitis Hoyne and co-workers[8] used diethylstilbestrol in 39 patients without controls In 23 08 per cent orchitis developed while they were receiving 1 mg of diethylstilbestrol daily but the incidence was zero for those receiving 2 mg daily

ANALYSIS OF CLINICAL MATERIAL

During the period 1946 to 1948 a total of 170 cases of mumps in male patients aged 13 years and over were observed at the Kingston Avenue Hospital Ninety-two patients were treated with diethylstilbestrol for an average of five to seven days, and 78 were used as controls Of the 78 controls 42 had orchitis on admission, of the remaining 36 admitted without orchitis, 6 or 16 7 per cent, had this complication subsequently Of the 92 patients who received treatment therapeutically or prophylactically, 47 had epididymo-orchitis on admission to the hospital Of these 47 patients, 7 received 1 mg of diethylstilbestrol three times daily, and 40 received 5 mg three times daily The remaining 45 patients of this group admitted without orchitis received 5 mg three times daily Orchitis developed in 7, or 15 6 per cent, of this last group One patient aged 30 received a course of 15 mg diethylstilbestrol daily for seven days He was discharged the eighth day, stayed home for one week and then was readmitted with epididymo-orchitis

Table 1—*Therapeutic Use of Diethylstilbestrol in Orchitis Due to Mumps*

	Days of Fever	Days of Orchitic Swelling	Bilateral	Unilateral
Treated (47)				
3 mg (7)	6 4	11 0	5	2
15 mg (40)	5 4	8 6	10	30
Untreated (42)	5 2	9 2	9	33

Table 1 summarizes the results obtained with the therapeutic use of diethylstilbestrol, comparing its effects on a group of 47 patients admitted with orchitic swelling and 42 who did not receive endocrine therapy Of those treated, 7 received 1 mg three times daily and 40 received 5 mg three times daily It can be noted that the duration of the fever was 6 4 days for those receiving 1 mg and 5 4 days for those receiving the larger dose Although this would appear to be a significant difference, the figure of 5 2 days as the average duration of fever in the untreated patients negates this impression There seems to be little significant difference in the duration of the orchitic swelling or in the occurrence of bilateral or unilateral involvement for the two groups It would thus appear that the therapeutic value of diethylstilbestrol in orchitis due to mumps is extremely dubious

In table 2 are seen the figures obtained by the use of diethylstilbestrol prophylactically In this group all patients received 5 mg of diethylstilbestrol three times daily The duration of fever in those in whom orchitis developed was 4 3 days as compared to 5 1 in the untreated group This figure of 4 3 days is considered significantly lower than that for the untreated group especially when compared to the duration of fever of 6 4 days for those treated therapeutically with 1 mg of diethylstilbestrol three times daily The figure of 6 9 days for the duration of orchitic swelling is also significantly smaller than that for any of the other groups with an average of 9 3 days for those untreated There appears to be no appreciable effect on the occurrence of unilateral or bilateral orchitis, and an incidence of orchitis in 15 6 per cent of those given diethylstilbestrol prophylactically compared to 16 7 per cent in those untreated does not appear to indicate any major prophylactic value for the endocrine substance

Table 2—*Prophylactic Use of Diethylstilbestrol in Mumps*

	Days of Fever	Days of Orchitic Swelling	Bilateral	Unilateral	Number of Cases in Which Orchitis Developed	Percentage of Occurrence
Treated (45)						
15 mg	4 3	6 9	1	6	7	15 6
Untreated (36)	5 1	9 4	1		6	16 7

In table 3 are compared the results obtained in this series with those of Savran and Hoyne In the figures reported by both groups it would appear that there is a decreasing incidence of orchitis due to mumps with the use of diethylstilbestrol, as well as a diminishing number of cases with increasing doses of the endocrine substance The data collected at the Kingston Avenue Contagious Disease Hospital clearly negate the results of Savran and Hoyne, with almost equal incidence of orchitis due to mumps in both controls and treated patients It should be noted, however that the subjective reports of those treated prophylactically indicated considerably less discomfort and pain

Also investigated but not included in the tables was the consideration whether diethylstilbestrol influenced the termination of the fever Among all groups the termination by lysis or crisis was the same

COMMENT

Savran found that a beneficial effect resulted from the administration of diethylstilbestrol prophylactically in the prevention of orchitis due to mumps This drug has been used at the Kingston Avenue Contagious Disease Hospital both prophylactically and therapeutically in cases of mumps and of mumps complicated by orchitis Hoyne and co-workers have also reported a beneficial effect of diethylstilbestrol in the prophylaxis and treatment of the aforementioned condition

Table 3—*Analysis of Results of Diethylstilbestrol Therapy*

Cases in Which Orchitis Developed After Hospitalization	Savran	Hoyne and Other	Norton
Untreated	16 6%		16 7%
Treated			
1 mg		23 08%	
2 mg		None	
3 mg	5 5%		
4 mg	None		
15 mg			15 6%

From a three year study I believe that diethylstilbestrol is of little use therapeutically in orchitis due to mumps Also its value in preventing the onset of orchitis due to mumps with the doses used at this hospital appears to be nil Some value however, exists in terms of less pain shorter duration of fever and less orchitic swelling when diethylstilbestrol is used prophylactically

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[8] Hoyne A L Diamond J H and Christian T R Diethylstilbestrol in Mumps Orchitis J A M A 140 662 (June 25) 1949

SUMMARY

1 The use of diethylstilbestrol was investigated for both its therapeutic and prophylactic value in mumps orchitis

2 No significant differences were noted between the therapeutically treated patients and those in the control group

3 The administration of diethylstilbestrol does not prevent the onset of orchitis due to mumps There is little difference between the incidence of this condition among the prophylactically treated group and the controls

4 Prophylactically the administration of diethylstilbestrol may be advisable for its value in terms of shorter duration of both fever and orchitic swelling and less discomfort if orchitis develops

Clinical Notes, Suggestions and New Instruments

DIAPHRAGMATIC FLUTTER

Follow Up Report

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Birmingham Ala

This is a follow-up report of a patient whose case has been followed in THE JOURNAL from time to time[1]

On June 15, 1948 a 76 year old white man was admitted to Lawson Veterans Administration Hospital Chamblee, Ga, with severe pain in the left side of the chest He gave the following history He had been a "radar operator on a merchant steamer on which there had been an explosion off Cape Hatteras ten days previously He had been thrown from the radio room with a resultant concussion of the chest He was admitted to the Marine Hospital Norfolk Va where he began coughing up blood from the "right chest" A phrenic nerve operation was done on the right side to control the hemorrhage Since the patient was anxious to visit relatives in Florida he left the hospital after four or five days, against medical advice His journey carried him through Atlanta, Ga and while hurrying across a street he was suddenly seized with severe pain in the left side of the chest and collapsed An ambulance rushed him to the City Hospital where a diagnosis of myocardial infarction was made Because rapid tic-tac sounds in the region of the cardiac apex were heard, a diagnosis of ventricular tachycardia was made and quinidine sulfate was given A short time later an electrocardiogram was made which showed a normal sinus rhythm The tic-tac sounds were no longer present He insisted that he was a veteran of both world wars and demanded treatment in a veterans' hospital

Examination showed blood pressure, 120 systolic and 80 diastolic pulse rate, 76, temperature, 97 2 F and respirations 40, rapid and jerky He appeared acutely ill with an anxious expression and a belligerent attitude There was a recent incision, with sutures still in place, in the right supraclavicular region, and in the left supraclavicular region there were old linear scars The pupils were miotic, round and equal, and the nasal septum was perforated anteriorly (said to be due to gas in World War I) He had a closely cropped mustache, linear scars over the upper and lower lips and complete dentures There was limitation of motion of the left side of the chest with short and jerky respirations Intercostal muscles over the left anterior portion of the chest were tight Breath sounds were distant over the left lower part of the chest and normal on the right No rales or friction rubs were heard The heart sounds could not be heard because of a tic-tac, shuffling to and fro rhythm heard in the left lower part of the chest at a rate of 240 per minute At first this sound was confusing, but when the radial pulse was compared with the precordial sounds the discrepancy bore out the true diagnosis of diphragmatic flutter

Fluoroscopic examination revealed the right leaf of the diaphragm to be high and fixed Rhythmic contractions of the left leaf at a rate of 240 per minute were seen Respiratory movements of the left side of the diaphragm were not seriously affected An electrocardiogram showed a normal sinus rhythm with a rate of 75 T waves were inverted in leads V_1 through V_4, suggesting myocardial ischemia

On admission the white blood cell count was 10,150, with 42 per cent segmented forms, 8 per cent band cells, 7 per cent juvenile forms, 38 per cent lymphocytes, 3 per cent monocytes, 1 per cent eosinophils and 1 per cent basophils The hemoglobin was 14 Gm per hundred cubic centimeters The sedimentation rate was 32 mm per hour The Kahn reaction of the blood was negative Urinalysis showed a specific gravity of 1 022 with albumin (1 plus), sugar (2 plus), no acetone, occasional hyaline casts and a few white blood cells The nonprotein nitrogen was 35 mg per hundred cubic centimeters The prothrombin time was 19 seconds, with a control time of 17 seconds The fasting blood sugar was 100 mg per hundred cubic centimeters A urinalysis on June 21, 1948 showed a specific gravity of 1 024, a trace of albumin and no sugar

During the patient's hospital stay, the episodes of diaphragmatic flutter recurred irregularly, lasting one to three hours They appeared to be accompanied with severe pain, for which he asked relief however, he preferred the pain to any type of injection

When questioned about his identity and past history, he was adamant in his denial of previous episodes He was definitely identified as the man reported periodically in THE JOURNAL by the tattoos on his forearms described by Cain and Ware[1c] When asked when he had last seen Dr Porter,[1a] he admitted his identity and became vehement in his tirades against the medical profession in general for publicizing his case He insisted that his name was Charles Bennett, by which name he was admitted to this hospital After a few days of rest the attacks of flutter became less frequent and the patient left the hospital against medical advice

With this report we can add little in determining the etiology of diaphragmatic flutter We did not complete the ligation of the left phrenic nerve because we felt that it probably followed an unusual course in the neck It seemed apparent that the repeated attempts in the past to completely ligate the left phrenic nerve had failed probably because the nerve is anomalous or has a circuitous route The question arose as to whether this patient could bring on his attacks of diaphragmatic flutter and thereby go from one hospital to another We have no reason to believe that this is true We do feel strongly that he does not use this malady to obtain any sort of drug During this hospital admission he again had a temperature of 102 F, for which no cause was determined This phenomena has been described in the literature on several occasions

We hope that reports of this man's progress continue to reach the literature His is an exceedingly interesting case.

Addendum.—One of us (W J S) was visiting in the Veterans' Administration Hospital in Fayetteville, N C, in February 1949, and saw this patient in another attack of diaphragmatic flutter At that time he had grown a beard which completely covered his face and extended in goatee fashion for about 4 inches

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From the Medical Service Lawson Veterans Administration Hospital and the Department of Medicine Emory University School of Medicine Atlanta

[1] (a) Porter, W B Diaphragmatic Flutter with Symptoms of Angina Pectoris J A M A **106** 992 (March 21) 1936 (b) Whitehead R W, Burnett, C T and Lagen, J B Diaphragmatic Flutter J A M A **112:** 1237 (April 1) 1939 Goodman, M J Paroxysmal Flutter of Diaphragm Simulating Coronary Occlusion J A M A **116:** 1635 (April 12) 1941 (c) Cain F I, and Ware E R Diaphragmatic Flutter with Symptoms Suggesting Angina Pectoris, J A M A **131** 1058 (July 27) 1946

SUMMARY

1. The use of diethylstilbestrol was investigated for both its therapeutic and prophylactic value in mumps orchitis.

2. No significant differences were noted between the therapeutically treated patients and those in the control group.

3. The administration of diethylstilbestrol does not prevent the onset of orchitis due to mumps. There is little difference between the incidence of this condition among the prophylactically treated group and the controls.

4. Prophylactically the administration of diethylstilbestrol may be advisable for its value in terms of shorter duration of both fever and orchitic swelling and less discomfort if orchitis develops.

Clinical Notes, Suggestions and New Instruments

DIAPHRAGMATIC FLUTTER

Follow-Up Report

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This is a follow up report of a patient whose case has been followed in THE JOURNAL from time to time.[1]

On June 15, 1948 a 76 year old white man was admitted to Lawson Veterans Administration Hospital, Chamblee, Ga., with severe pain in the left side of the chest. He gave the following history: He had been a "radar operator" on a merchant steamer on which there had been an explosion off Cape Hatteras ten days previously. He had been thrown from the radio room with a resultant concussion of the chest. He was admitted to the Marine Hospital, Norfolk, Va., where he began coughing up blood from the "right chest." A phrenic nerve operation was done on the right side to control the hemorrhage. Since the patient was anxious to visit relatives in Florida, he left the hospital after four or five days, against medical advice. His journey carried him through Atlanta, Ga., and while hurrying across a street he was suddenly seized with severe pain in the left side of the chest and collapsed. An ambulance rushed him to the City Hospital, where a diagnosis of myocardial infarction was made. Because rapid tic-tac sounds in the region of the cardiac apex were heard, a diagnosis of ventricular tachycardia was made and quinidine sulfate was given. A short time later an electrocardiogram was made which showed a normal sinus rhythm. The tic-tac sounds were no longer present. He insisted that he was a veteran of both world wars and demanded treatment in a veterans' hospital.

Examination showed: blood pressure, 120 systolic and 80 diastolic; pulse rate, 76; temperature, 97.2 F., and respirations 40, rapid and jerky. He appeared acutely ill with an anxious expression and a belligerent attitude. There was a recent incision, with sutures still in place, in the right supraclavicular region, and in the left supraclavicular region there were old linear scars. The pupils were miotic, round and equal, and the nasal septum was perforated anteriorly (said to be due to gas in World War I). He had a closely cropped mustache, linear scars over the upper and lower lips and complete dentures. There was limitation of motion of the left side of the chest with short and jerky respirations. Intercostal muscles over the left anterior portion of the chest were tight. Breath sounds were distant over the left lower part of the chest and normal on the right. No rales or friction rubs were heard. The heart sounds could not be heard because of a tic-tac, shuffling to and fro rhythm heard in the left lower part of the chest at a rate of 240 per minute. At first this sound was confusing, but when the radial pulse was compared with the precordial sounds the discrepancy bore out the true diagnosis of diaphragmatic flutter.

Fluoroscopic examination revealed the right leaf of the diaphragm to be high and fixed. Rhythmic contractions of the left leaf at a rate of 240 per minute were seen. Respiratory movements of the left side of the diaphragm were not seriously affected. An electrocardiogram showed a normal sinus rhythm with a rate of 75. T waves were inverted in leads V_1 through V_4, suggesting myocardial ischemia.

On admission the white blood cell count was 10,150, with 42 per cent segmented forms, 8 per cent band cells, 7 per cent juvenile forms, 38 per cent lymphocytes, 3 per cent monocytes, 1 per cent eosinophils and 1 per cent basophils. The hemoglobin was 14 Gm. per hundred cubic centimeters. The sedimentation rate was 32 mm. per hour. The Kahn reaction of the blood was negative. Urinalysis showed a specific gravity of 1.022 with albumin (1 plus), sugar (2 plus), no acetone, occasional hyaline casts and a few white blood cells. The nonprotein nitrogen was 35 mg. per hundred cubic centimeters. The prothrombin time was 19 seconds, with a control time of 17 seconds. The fasting blood sugar was 100 mg. per hundred cubic centimeters. A urinalysis on June 21, 1948 showed a specific gravity of 1.024, a trace of albumin and no sugar.

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POSTOPERATIVE TETANUS

Report of a Fatal Case

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It is fortunate that tetanus is a rare complication of elective surgical procedures. However, when it does occur the result tends to be disastrous and the problem of the management of the capricious disease may suddenly become extremely important to the surgeon who is obliged to continue on the case as the responsible medical attendant. The following case report presents an experience with fulminating infection with Clostridium tetani occurring after a pelvic operation.

REPORT OF CASE

B. V. K., a white woman aged 42, was first admitted to the hospital on May 28, 1948 with colic-like abdominal pain, vomiting and diarrhea. Her last menstrual period had begun normally thirty days before but she had been bleeding intermittently since. Chills and fever had been present for one week. Though married for twenty years she had never been pregnant. The chief finding on physical examination was a large cystic tumor mass filling the entire pelvis. There were 32 000 white blood cells, 95 per cent of which were polymorphonuclear forms. Operation for removal of the pelvic mass was advised.

At operation on May 28 my associates and I found a large pyosalpinx measuring 15 by 13 cm., which was intimately adherent to the uterus, omentum and sigmoid colon. It was necessary to use sharp dissection to free the mass from the latter and in doing this some of the serosa was stripped off. However the denuded area was later peritonized. Because of the pyogenic nature of the lesion the patient was given 300,000 units of penicillin daily for seven days and 75 grains (5 Gm.) of sulfadiazine daily for two days. Her highest postoperative temperature was 99.4 F. She was ambulant on the first postoperative day, her wound healed per primum and she was discharged on the tenth postoperative day.

Seven days later, or seventeen days after the operation, she was readmitted to the hospital by ambulance in convulsions. The previous night she had complained of some pain and stiffness of the neck and a little difficulty in swallowing and had expressed the fear that lockjaw was developing. At 4 a.m. her husband had been awakened by the first of her convulsions, which were almost continuous until her arrival at the hospital. At that time the jaws were set so that the mouth could not be opened. Tapping of the angle of the jaw increased the severity of the trismus and initiated another series of convulsions during which she became cyanotic and almost ceased breathing. The chest and abdominal muscles became rigid and opisthotonus became so severe that spinal puncture was out of the question. She was placed in a quiet dark room with a special nurse in attendance. The slightest noise, such as the opening of a door, frequently started another convulsion. Between these episodes her mind was clear and she was aware of her condition.

The treatment given during the first two days is summarized in the accompanying table. Tetanus antitoxin therapy was begun after a skin test for sensitivity gave a negative reaction. She was given a total of 1,900,000 units of penicillin and 260 000 units of tetanus antitoxin over a period of thirty-eight hours. Her progress was encouraging until the evening of the first day, when the convulsions returned and became uncontrollable with the milder sedatives. At this time she was given 3 cc. (60 units) of *d* tubocurarine chloride by Dr. Edward Thompson of the Division of Anesthesiology. The response was dramatic; face and throat muscles relaxed, breathing became free and color improved. This was short lived, however, because within half an hour the most violent convulsion of all developed and further sedation was necessary. Cyanosis became severe and only the immediate aspiration of mucus from her throat and vigorous oxygen administration prevented asphyxiation. Thereafter, oxygen was administered by nasal catheter continuously. The major problem then was to combat the convulsions and it took anesthetic doses of tribromoethanol interspersed with milder sedatives to accomplish this. The morning of the second day the convulsions had ceased and further sedation seemed unnecessary. She was mentally alert, could swallow liquids, could talk and was cooperative. In spite of frequent aspiration of mucus from the throat and continuous oxygen therapy, cyanosis and respiratory embarrassment persisted. Coarse scattered rales were present throughout both lungs except for the left base, where there was an area of dulness. The temperature rose to 102.6 F., respiratory rate to 40 and pulse rate to 130. Pulmonary edema with bronchopneumonia had developed, as confirmed by a portable chest roentgenogram. The patient died twenty-one hours after the last convulsion.

Treatment Given During the First Two Days in a Case of Tetanus

	Tetanus Antitoxin *	Aqueous Penicillin †	Sedation
First Day			
9:00 a.m.	40 000		Morphine sulfate 15 mg.
10:00 a.m.		100 000	
1:00 p.m.	40,000	100 000	
3:00 p.m.			Phenobarbital sodium 130 mg.
4:00 p.m.		100 000	
5:00 p.m.	20 000		
6:00 p.m.			Phenobarbital sodium 130 mg.
7:00 p.m.			3 cc. *d* tubocurarine chloride (60 units)
7:30 p.m.			Phenobarbital sodium 600 mg.
9:00 p.m.			Tribromoethanol 90 mg. per kilogram
10:30 p.m.			Phenobarbital sodium 180 mg.
12:30 p.m.			Tribromoethanol 90 mg. per kilogram
2:00 a.m.			Phenobarbital sodium 130 mg.
5:00 a.m.			Tribromoethanol 90 mg. per kilogram
Second Day			
7:00 a.m.	40 000		
8:00 a.m.		100 000	
10:00 a.m.	20 000		
11:00 a.m.		300 000	
2:00 p.m.	20 000		
3:00 p.m.		300 000	
6:00 p.m.		300 000	
7:00 p.m.	40 000		
9:00 p.m.		300 000	
10:00 p.m.	20 000		
12:00 p.m.		300 000	
1:00 a.m.	20 000		
Total	260,000	1,900 000	

* Units given intravenously.
† Units given intramuscularly.

Autopsy Observations.—Important observations at autopsy[1] were limited to the lungs and pelvis. The left lung weighed 810 Gm. and showed moderate increase in consistency throughout; its cut surface was gray green and exuded a large amount of clear frothy fluid. The right lung weighed 850 Gm.; its upper and middle lobes resembled the left lung, while the lower lobe was almost completely collapsed and its basal pleura adherent to the diaphragm. Cross section revealed a wedge-shaped area of red discoloration at the right base 7 by 4 cm., the base of the wedge being situated beneath the pleura. There was no abscess or other form of necrosis in the lesion; however, the bronchial tree adjacent to it contained blood-tinged purulent exudate and the related branches of the pulmonary artery contained organized blood clot. Microsection revealed scattered lobular suppurative inflammation associated with a large amount of serous exudate in the alveoli. The right basal lesion exhibited a more advanced degree of suppurative inflam

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[1] Autopsy was performed by Dr. Edward F. Ducey four hours after the death of the patient.

mation associated with thrombosis of the regional pulmonary arterial tree, nothing resembling an embolus could be identified

The pelvis contained numerous fresh, sticky adhesions involving loops of small bowel, colon, uterus and adnexa, a firm adhesion formed a pocket between the stump of the right oviduct and the sigmoid colon which contained about 30 cc of bloody fluid Cultures of this material revealed Cl tetani No other abscesses were found, although the peritoneal cavity contained about 80 cc of cloudy amber fluid There was no evidence of intestinal perforation

Microscopically the stump of the right tube showed an active subacute inflammation with many microscopic abscesses In one of these bacterial stains revealed typical tetanus organisms within a mass of granulation tissue on the serosal aspect of the tube wall Two cubic centimeters of fluid obtained from the basal cistern at autopsy produced no reaction when injected into a guinea pig

Diagnoses include postoperative pelvic peritonitis with tetanus infection residual right salpingitis, pulmonary edema and infarction and lobular pneumonitis

COMMENT

Wainwright[2] in 1926 reviewed 3,000 cases of tetanus and found that 365 were postoperative infections Since that date few cases have appeared in the literature Schmid[3] in 1937 reported 9 cases following surgical procedures on the intestine, with 9 deaths Bunch and Quattlebaum[4] in 1943 reported 8 cases terminating fatally (6 after hysterectomy, 1 after nephrotomy and 1 after surgical intervention for aneurysm) from small hospitals in which the only method of sterilization was by boiling The Royal College of Obstetrics and Gynecology of England, realizing that tetanus is more common as a complication in this field than is generally admitted went so far as to appoint a commission to investigate its occurrence Tetanus neonatorum from infected navels and tetanus following abortion are said to appear where expected An unexpected source of the disease was from contaminated vulvar pads made from cotton or wool and infested with the organism Pizzini has stated that 5 per cent of all men carry Cl tetani in their stools whereas stool cultures taken in Peiping, China revealed that 30 per cent of all the persons checked carried the organism Since the microscopic examination revealed a nidus of spore-bearing organisms at the point where the tube was dissected from the colon we presume that our patient had these bacteria in her bowel and that the presence of pyogenic organisms and local surgical trauma created the proper anaerobic conditions for virulent growth

Our helplessness to prevent the fatal outcome in this case was probably due to our inability to remove the primary focus in the pelvis In this connection I recall a case which I observed as a resident on the orthopedic service of the Henry Ford Hospital in Detroit in 1932 The patient recovered, but it was possible to eradicate the area of infection by the prompt but radical procedure of limb amputation This patient had had a compound fracture of the left tibia almost two months earlier and had been treated elsewhere Inquiry revealed that she had received the usual 1 500 units of tetanus antitoxin and perfringens combined at the time of injury She entered Henry Ford Hospital with the characteristic risus sardonicus trismus and other signs of severe tetanus In spite of the fact that she had been given 100,000 units of tetanus antitoxin (60,000 intravenously and 40,000 intramuscularly) in the first twenty-four hours her condition became precarious Her temperature rose to 103 5 F, pulse rate to 120 and respiratory rate to 28 Tetanic spasms became more frequent and severe Dr Roy D McClure and Dr Carl Badgley in consultation decided that amputation should be done at once Although she was given more serum, recovery was rapid and dramatic Within forty-eight hours trismus had disappeared Soon thereafter she could swallow and speak Recovery was complete and there was no recurrence Historically this method is of some interest, as Larrey, chief surgeon for Napoleon, found that by amputating within the first twenty-four hours after tetanus or gangrene developed he could save some lives

Within six years of the discovery of Cl tetani by Nicolaier in 1884, Von Behring and Kitasato had laid the basis for antitoxic therapy for both tetanus and diphtheria The prophylactic value was soon widely accepted, but its therapeutic worth was questioned once the trismus and spasms appeared The death rate as well as the incidence of the disease in both civil and military life showed little change until World War II The armed services are to be highly commended on the low incidence of tetanus in the recent war In only 12 cases in 2,734,918 wounds did tetanus develop, and, of these, 6 patients had not received basic immunization and but 4 had been given an emergency stimulating dose There were only 5 fatal cases Civilian mortality from tetanus in the United States was 20 times as high in 1946 (585 cases) as it was in the armed forces during the entire course of the war (0 4 per 100,000 persons vs 0 02 per 100,000 persons) Thus the policy of giving three doses of 1 cc of toxoid subcutaneously at intervals of three weeks, with a stimulating dose of 1 cc given a year later, as instituted by Long and Sartwell, was well justified and also demonstrates that tetanus is a preventable disease

As early as 1908 Dr Roy D McClure and R T Miller,[5] on the service of Dr Halsted, realized that the control of convulsions was almost as important as specific medication This they accomplished by the ingenious method of injecting a 25 per cent solution of magnesium sulfate intraspinally, with excellent results Every type of sedative has been used since, and each has its proponents Tribromoethanol is favored by physicians who see a fair number of these cases each year Curare in one form or another is currently popular but not harmless as Adriani and Ochsner[6] have found

Treatment of tetanus with penicillin, once established, was found by Altemeier[7] to be disappointing in his series of 16 cases It seemed worthless, either as prevention or cure, in our case In a comparative report from Puerto Rico, where tetanus is much more common than it is here, Diaz-Rivera and his associates[8] in 59 cases had a mortality rate of 17 6 per cent when penicillin was used in conjunction with antitoxin, whereas his countryman Francisco[9] reported a mortality rate of 58 1 per cent in 100 patients receiving only antitoxin The value of sulfonamide drugs in the treatment of tetanus is only secondary, as might be expected Their worth in vitro or as a self-sterilizing agent was disproved by the appearance of tetanus in a case in which sulfonamide powder had been used in a wound

CONCLUSIONS

1 Massive doses of penicillin are of no avail once a toxic dose of tetanus has become fixed in the central nervous system

2 Massive doses of antitoxin are of no avail once a toxic dose of tetanus has become fixed in the central nervous system

3 Amputation of the affected limb, although it is a radical procedure, may be a life-saving measure in that it protects the central nervous system from being bombarded with further doses of toxin

4 Tetanus has been proved to be a preventable disease

Realizing this pediatricians and practitioners the country over are actively immunizing infants against tetanus simultaneously with immunization against pertussis and diphtheria, as the development of immunity to one seems to enhance the development of immunity to the others A year later immunity can be boosted by either toxoid or toxin This obviates the worry that most physicians experience in trying to decide which minor injuries need antitoxin and does away with the allergic reactions which in the past were often so frequent and severe that antitoxin was omitted in cases in which physicians would have preferred to use it

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[2] Wainwright J M Tetanus Its Incidence and Treatment Arch Surg **12** 1062 (May) 1926

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[5] Miller R T Treatment of Tetanus with Subarachnoid Injections of Magnesium Sulphate, Am J M Sc **136** 681 1908

[6] Adriani J and Ochsner A Some Observations on the Use of Curare in the Treatment of Tetanus Surgery **22** 509, 1947

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Council on Foods and Nutrition

This paper was prepared at the request of the Council and is one of a series appearing in The Journal *In the near future the entire series will appear in book form as the Council s Handbook of Nutrition* James R Wilson, M D, *Secretary*

VITAMIN D

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The term vitamin D is applied to sterol derivatives that have antirachitic properties Although several forms of vitamin D are known only two at present are of practical importance It is appropriate to consider that all antirachitic drugs and foods owe this property to one or both these forms, which are known as vitamin D_2 and vitamin D Vitamin D_2 is prepared by activation of ergosterol a vegetable sterol Vitamin D_3 results from activation of 7-dehydrocholesterol, an animal sterol Activation is carried out by exposure to ultraviolet rays or to low velocity electrons Vitamin D_3 is the type formed in the skin on exposure to sunshine or ultraviolet rays The fish liver oils contain mixtures of these varieties of vitamin D Tuna liver oil, for example, contains a preponderance of vitamin D_2 over vitamin D_3 and cod liver oil a preponderance of vitamin D_3

Vitamin D is present in abundance in fish liver oils and in fair amounts in the body fat of a few fish, such as salmon Most other foods contain little or negligible amounts of vitamin D Egg yolk may contain a substantial amount if vitamin D is present abundantly in the diet of the hen Bovine milk and human milk contain 3 to 40 U S P units of vitamin D to the quart[1] Because vitamin D is present in such small amounts and its content is so unreliable in most foods and because exposure to sunshine, especially in cold months, is generally inadequate in this country, the requirement for this vitamin must be satisfied by medicinal preparations

Milk fortified with vitamin D is available all over the country Nearly all evaporated milk is fortified The standard amount used for fortification is 400 units to the quart of fresh milk and the reconstituted quart of evaporated milk Bread is the only other food recognized by authoritative bodies as suitable for fortification, however relatively little bread is so fortified

Vitamin D is available commercially in numerous types of preparations The oldest of these, other than fish liver oils, is synthetic oleovitamin D (viosterol in oil), a product of the irradiation of ergosterol Irradiation gives rise to several products, including calciferol or vitamin D_2, which is present in synthetic oleovitamin D in the amount of 10,000 units to the gram Calciferol is available also in purified form, free from the by-products of irradiation, it is available in crystalline form or in several types of solvents, including propylene glycol, which makes the vitamin dispersible in water Vitamin D_3 is available in similar preparations—as activated 7-dehydrocholesterol crystalline vitamin D_3 and water-miscible preparations and solutions

The oldest of the medicinal fish liver oils is that of the cod which is still a standard product, although it has partially been replaced by newer products The United States Pharmacopeia minimum standard cod liver oil contains approximately 310 units of vitamin D to the teaspoon (85 units to the gram) The vitamin D content of cod liver oil marketed under trade or firm names is standardized at higher levels some at 600 units and one at 900 units to the teaspoon

Liver oils from several other varieties of fish are available The one with most extensive usage is percomorph liver oil, although in most instances other fish liver oils up to the amount of nearly 50 per cent are mixed with percomorph oil and the preparation is then standardized with viosterol to contain 8,500 units to the gram Concentrates of fish liver oils are used to some extent for fortification of milk with vitamin D

Vitamin D is stable under common conditions of handling It is stable to heat Some destruction occurs with rancidity of the carrier fat The esters are more stable than free vitamin D[2] Premixing vitamin D with minerals for poultry feed causes rapid loss[3] However conditions causing loss of vitamin D usually do not prevail in its use for man

Ingested vitamin D is absorbed with the fat of the food Any condition that interferes with absorption of fat, such as absence of bile, decreases absorption of the fat-soluble vitamins, including vitamin D Vitamin D after absorption from the intestine or the skin, is stored chiefly in the liver but to some extent also in the skin brain, spleen and bones[4] The stored vitamin is released slowly, and its effect is apparent for a considerable time after deprivation

While it is clear that the functions of vitamin D relate to the metabolism of calcium and phosphorus the mechanism of its influence is not established The chief effect of moderate amounts of vitamin D is the increase of the amounts of calcium and phosphorus retained in the body Determination of whether or not vitamin D increases absorption is complicated by the excretion of these minerals into the intestine in the digestive juices However, it appears certain that absorption of calcium is definitely increased by moderate amounts of vitamin D Some question exists as to increased absorption of phosphorus but the amount excreted in the feces is reduced Also vitamin D has the effect of decreasing excretion of phosphorus in the urine by increasing resorption in the tubules When there is a deficiency of vitamin D the amounts of both minerals are increased in the stool and the urine shows decrease in calcium and increase in phosphorus excretion Experimental data indicate that the liver plays an important role in the antirachitic function of vitamin D[5]

In addition to the function of maintaining calcium and phosphorus in the blood at levels suitable for deposition in bone, it has been postulated that vitamin D has a specific action at the site of deposition Indirect evidence exists that vitamin D may act to aid conversion

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From the State University of Iowa Iowa City

[1] Polskin L J Kramer B and Sobel A E Secretion of Vitamin D in Milks of Women Fed Fish Liver Oil J Nutrition **30** 451 (Dec) 1945

[2] Huber W and Barlow O W Chemical and Biological Stability of Crystalline Vitamins D_2 and D_3 and Their Derivative J Biol Chem **149** 125 (July) 1943

[3] Milby T T and Thompson R B The Stability of Vitamin D in D Activated Animal Sterol When Fed to Turkey Poults Poultry Science **22** 357 (Sept) 1943 The Stability of D Activated Animal Sterol When Premixed with Common Poultry Feed Ingredients ibid **23** 405 (Sept.) 1944

[4] Vollmer H Distribution of Vitamin D in the Body After Administration of Massive Doses Am J Dis Child. **57** 343 (Feb) 1939 Heymann W Metabolism and Mode of Action of Vitamin D II Storage of Vitamin D in Different Tissues in Vivo J Biol. Chem. **118** 371 (April) 1937 Houet R. Studies of the Metabolism of Vitamin D I Retention and Distribution of Vitamin D in the Tissues of an Infant Who Had Received 15 Mm. Calciferol by Intramuscular Injection Ann paediat. **166** 169 (April) 1946

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of organic phosphorus to inorganic phosphorus at the site of deposition in bone [6] Alkaline phosphatase may be a part of this picture Its function is not known except that it is related to phosphorus metabolism It can change organic phosphorus to inorganic phosphorus Its increase in the blood is one of the first evidences of vitamin D deficiency

Deficiency of vitamin D results in poor retention of calcium and phosphorus, which in turn may cause retarded skeletal growth In its more severe degrees it causes rickets in those who are still growing and osteomalacia in those fully grown In some circumstances it may result in tetany

The rate of skeletal growth is controlled in part by the availability of calcium and phosphorus for mineralization of bone The effect of vitamin D in regulating calcium and phosphorus metabolism and therefore, on bone growth is particularly observable in infancy, when growth is rapid [7] Babies receiving only the minimum amount of vitamin D for rickets prevention have average linear growth Those who receive amounts of vitamin D that produce better calcium and phosphorus retention (300 to 400 units a day) grow at rates greater than average Amounts of vitamin D considerably in excess of the need cause loss of appetite, decreased intake of food and consequently decreased total retention of calcium and phosphorus babies with this condition grow at rates less than average

Another effect of vitamin D deficiency has been shown by Warkany [8] for animals It is doubtful that a similar effect occurs in man When the mother was fed a rachitogenic diet and deprived of vitamin D nearly half of the young were born with congenital skeletal malformations In general the bones were curved and shortened

The question arises of whether a distinction between vitamin D_2 and vitamin D_3 is of practical interest in human physiology It is known that for the chick many times as much vitamin D_2 as vitamin D_3 is required for prevention of rickets It is known also that vitamin D_3 is more effective for the turkey poult than is cod liver oil A distinction between the two varieties of vitamin D is of practical importance to the producer of poultry feeds Such evidence as exists for man is still somewhat contradictory Viosterol (D_2) has been found less effective than cod liver oil in prevention of dental caries in orphanage groups [9] Cod liver oil has been found to produce more rapid healing of rickets in babies than did viosterol [10] In neither study could the subjects be closely controlled In a closely controlled inpatient study [11] of normal infants no difference was found between the two varieties when they were given as vitamin D milk and when calcium and phosphorus retentions were used as the criteria Differences failed to appear, whether the milk contained 400 or 135 units to the quart In another well controlled study Glaser and co-workers [12] found no difference in retentions between vitamin D_2 and vitamin D in a group of prematurely born babies It seems logical to believe that if no differences are found in calcium and phosphorus retentions, no differences exist for man between the two forms of the vitamin

REQUIREMENT OF NORMAL INFANTS

A full term, breast-fed baby receives in his food an amount of calcium and phosphorus just sufficient to provide for good growth Although the intake is minimum, the proportions of several of the milk constituents are such as to permit good absorption of these minerals Also, if vitamin D is being given to the mother, the baby may receive up to 40 or more units daily in the milk It is because of these several factors that rickets is less common in breast-fed than in artificially fed babies, even when no vitamin D is given Nevertheless, rickets develops in some breast-fed babies, and in any case more calcium and phosphorus are retained when vitamin D is given The requirement of the breast-fed baby is no greater and it may be less, than that of the artificially fed baby

When babies are fed customary formulas of cow's milk they receive ample amounts of calcium and phosphorus However, the proportions of other constituents are such as to interfere with absorption of these minerals unless vitamin D is given When no vitamin D is given the range of calcium retention is wide but the average is approximately 10 per cent of the intake When babies are given 90 to 100 units daily (the amount obtained by young babies in vitamin D milk containing 135 units to the quart), retention is increased to 25 to 30 per cent of the intake and the range of retention values is decreased, rickets is prevented and linear growth is average With 300 to 400 units daily as cod liver oil or milk containing vitamin D, calcium retention is increased to between 35 and 40 per cent of the intake, the range of retention values is further decreased and linear growth is greater than average Increase of the amount of vitamin D above 400 units has no effect in increasing the percentage of intake retained [13]

When 800 units of vitamin D are given daily, the effect on retention and growth is identical with that of 300 to 400 units As the amount of vitamin D is increased further the percentage of calcium intake retained remains the same, but with amounts of 1,800 or more units daily appetite is decreased after several months, food intake is smaller and, consequently, the total calcium retention is less Linear growth then becomes retarded [7b] Thus, mildly toxic effects occur with what is commonly prescribed and considered a reasonable and harmless prophylactic dosage

Some evidence exists that concentrates of vitamin D in solution in oil are not so well utilized by infants as are the more dispersed forms The concentration present in cod liver oil allows good utilization[14]

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[7] (*a*) Stearns G Jeans, P C and Vandecar V The Effect of Vitamin D on Linear Growth in Infancy J Pediat **9** 1 (July) 1936 (*b*) Jeans, P C, and Stearns, G The Effect of Vitamin D on Linear Growth in Infancy The Effect of Intakes Above 1,800 U S P Units Daily J Pediat **13** 730 (Nov) 1938 (*c*) Slyker F Hamil, B M Poole, M W, Cooley, T B and Macy, I G Relationship Between Vitamin D Intake and Linear Growth in Infants, Proc Soc Exper Biol & Med **37** 499 (Dec) 1937

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[10] Barnes D J Kaucher, M and Munks B Metabolic Studies on Rachitic Infants Am J Dis Child **71**: 622 (June) 1946

[11] Jeans P C and Stearns G Unpublished data

[12] Glaser K, Parmelee, A H and Hoffman W S Comparative Efficacy of Vitamin D Preparations in Prophylactic Treatment of Premature Infants Am J Dis Child **77** 1 (Jan) 1949

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Rickets prevention by the administration of a single massive dose of vitamin D has had a number of advocates The practice had its start in Germany The earliest reports in this country were those of Zelson,[15] Wolf[16] and Rambar and co-workers,[17] although Vollmer[18] previously had reported such practice in the treatment of rickets The dose most commonly used is 500,000 to 600,000 units, given either orally or parenterally The antirachitic effect lasts about four months in nonrachitic infants[19] and two to three or more months in rachitic infants[20] Thus rickets can be prevented by giving 600 000 units three times a year Claim has been made that vitamin D in this amount is harmless Palmen[21] gave 500,000 units of vitamin D_2 to 7 nonviable newborn infants Subsequent examination showed no changes in the kidneys adrenals liver, spleen, aorta or heart He gave the same massive single dose to 200 prematurely born infants without producing any clinically demonstrable injury Krestin[22] gave 300,000 units orally to 93 infants under 2 years of age during the winter months, of these 90 remained free from rickets Jelke[23] reported prophylactic administration to a 9 month old baby of four doses of 500,000 units each at two month intervals Anorexia was noted after the second dose and greater anorexia after the third dose The anorexia lasted two weeks No physical damage was found

Houet[24] has reported balance studies of 5 normal and 4 rachitic infants after they had received 15 mg of vitamin D either orally or parenterally In general the calcium retentions of the healthy infants remained relatively unchanged as a result of the medication The phosphorus retentions decreased in 3 of the 5 normal babies and remained at a lower level throughout the period of observation, which was short These studies seem to show that there is no immediate ill effect from the prophylactic use of 15 mg of either vitamin D_2 or D_3 The studies probably are not conclusive It appears true that deleterious effect, if any occurs, is moderate and curable More data, covering a longer period, are needed to determine the advisability of this method of prophylaxis Does anorexia resulting in intake lowered enough to affect retentions and growth subsequently develop in babies treated in this manner?

The general consensus has been that the requirement of the prematurely born baby for vitamin D is greater than that of the baby born at term, yet no evidence for the opinion exists It is known that babies born prematurely develop rickets more often than those born at term, but the difficulty lies in a deficiency of calcium and phosphorus rather than in an increased need for vitamin D[25] In fetal life the bones are mineralized during the last three months A baby born one month prematurely has only about half the amount of calcium he would have if he had been carried to term Thus the premature baby starts postnatal life with a large handicap in bone mineralization Furthermore, he has a small capacity for food, whereas the need for food is relatively great if growth expectations are to be met While human milk contains enough calcium and phosphorus to supply the needs of the baby born at term the amount is inadequate for the premature baby Administration of vitamin D will not make up for this deficit in mineral Davidson and Merritt[26] found rickets in premature babies who had received large amounts of vitamin D If human milk is used, it must be fortified with dried skimmed milk or some special provision must be made to supply the increased need When the calcium and phosphorus requirement is supplied, the need of the prematurely born baby for vitamin D is the same as that of the baby born at term This concept was confirmed by Glaser and co-workers,[12] who found that doses of 100 and 800 units of each of four preparations of vitamin D were effective in preventing rickets and permitting normal growth They found as good calcium retention with 200 units of vitamin D as with 400 or 800 units They found also that vitamin D_2 gave the same results as vitamin D_3

REQUIREMENT OF CHILDREN

The fact that children past infancy need vitamin D is often overlooked A few children have good utilization of calcium and phosphorus without additional vitamin D, but there is no simple way of recognizing such children For this reason it is appropriate for all children to have a vitamin D supplement The need of the child for vitamin D has been shown by the observation of retentions of calcium and phosphorus with and without the vitamin Also, Follis and co-workers[27] found histologic evidence of rickets in nearly half the children from 2 to 14 years of age seen at autopsy in a Baltimore hospital, in these instances the relative roles of vitamin D deficiency and mineral deficiency are not too clear Again it is to be emphasized that intake of vitamin D will not compensate for a low calcium intake

The requirement of children for vitamin D has not had as much detailed study as has that of infants

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[20] Houet, R Calcium and Phosphorus Metabolism in Children IV Duration of Action of a Single Dose of 15 Mg of Vitamin D in a Rachitic Infant Ann paediat **167** 235 (Nov) 1946

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[25] Stearns G Mineral Metabolism of Normal Infant Physiol Rev **19** 415 (July) 1939 Benjamin, H R. Gordon H H and Marples E. Calcium and Phosphorus Requirements of Premature Infants Am J Dis Child. **65** 412 (March) 1934

[26] Davidson L T and Merritt, K K. Viosterol in the Prophylaxis of Rickets in Premature Infants Am. J Dis Child **48** 281 (Aug) 1934

[27] Follis R. H Jackson, D Eliot M M and Park E A Prevalence of Rickets in Children Between Two and Fourteen Years of Age Am J Dis Child **66** 1 (July) 1943

However, it is known that 300 to 400 units daily permits satisfactory calcium and phosphorus retentions when the diet contains appropriate and recommended amounts of these minerals [28]

During the prepubertal growth acceleration period and during adolescence the need for vitamin D is more universal than it is for the younger child past infancy During this period there is also a need for a greater intake of calcium than previously With an intake of recommended amounts of calcium and phosphorus, 400 units of vitamin D permits good retention of these minerals if the nutrition of the child is otherwise satisfactory Children who have had poor diets often fail to have good retention of calcium and phosphorus when first given a good diet After several months of a good diet, retentions gradually increase to the expected level without increase in vitamin D above 400 units daily

REQUIREMENT OF ADULTS

After growth has ceased the need for vitamin D is minimum except during lactation and the latter part of pregnancy McKay and co-workers,[29] in a study of young women with a well selected diet, found that the addition of 500 units of vitamin D daily had little influence on calcium retention, in comparison with the same diet without supplemental vitamin D Other evidence indicates that vigorous adults leading a normal life have little need for vitamin D However, it is believed desirable that small amounts be given to those whose habits shield them from sunlight Osteoporosis is common in the elderly Several possible causes have been postulated, and perhaps the causes are multiple Until the cause is more definitely determined, a small amount of vitamin D seems indicated

During lactation and the latter part of pregnancy the need for calcium and phosphorus is greatly increased During these periods supplemental vitamin D increases utilization The optimum amount is not known, but the calcium and phosphorus retention values observed with a high vitamin D intake are no greater than those observed with a moderate intake From available evidence it seems likely that 400 units daily is adequate

VITAMIN D THERAPY

The chief therapeutic use of vitamin D is in the treatment of rickets Because of widespread prophylaxis, clinically detectable rickets is relatively uncommon in this country Deficiency of vitamin D of a degree sufficient to cause rickets produces characteristic values for the amounts of calcium, phosphorus and phosphatase in the blood, in the blood serum the amount of calcium is normal or slightly lowered, the amount of inorganic phosphorus is much decreased, and the amount of phosphatase is increased The rachitic changes in bone are caused chiefly by the decrease in inorganic phosphorus and the disproportion between the calcium and phosphorus available An early effect of vitamin D therapy is an increase in serum phosphorus This increase is followed by mineral deposition in bone and eventual healing of the rachitic changes, if vitamin D therapy is continued The amount of phosphatase decreases soon after treatment is started, but it remains moderately elevated until healing is advanced and is the last of the blood values to become normal

An amount of vitamin D that will just prevent rickets will also cause healing, but the process is much slower than if larger amounts are given Amounts recommended for treatment vary widely One thousand units daily will produce normal calcium and phosphorus values in the blood in approximately ten days and healing changes in the bones detectable by roentgenograms in about three weeks One thousand units daily is the minimum recommended therapeutic dose [30] Three to four thousand units daily is often prescribed, and, with this amount, healing is more rapid In most instances no need exists for a larger amount or for more rapid healing of rickets The amount of vitamin D should be reduced to normal prophylactic dosage as soon as the rickets is under control

Single massive doses, for example 600,000 units, have been used for treatment, with favorable results reported [31] Such treatment is justifiable only when circumstances are unfavorable for daily ingestion of more moderate doses Healing of rickets seems to be no more rapid with the massive dose than with the daily moderate dose

In the preceding discussion it is stated that an early effect of vitamin D therapy of rickets is an increase in serum phosphorus and deposition of mineral in bone Early in this course a lowering of the calcium content of the blood occurs, but this decrease is transitory and unimportant if vitamin D therapy is continued However, if the initial amount of vitamin D is minimum and its administration is stopped early, the blood calcium may decrease to a low level, resulting in tetany As far as vitamin D is concerned, the treatment of rachitic tetany is the same as that for rickets During the period of approximately ten days required for restoring calcium and phosphorus values in the blood to normal other measures of control of the symptoms of tetany are indicated These may include intramuscular administration of magnesium sulfate or oral administration of calcium chloride or both

Clinically recognizable rickets from vitamin D deficiency after infancy is most uncommon in this country If it should occur, the treatment is the same as that for infantile rickets Advanced and easily recognizable rickets occurs in childhood from other causes One such cause is chronic nephritis with failure of phosphorus excretion and usually subsequent resulting changes in calcium metabolism Another cause is the Fanconi syndrome, in which the primary lesion appears to be in the function of the kidney tubules, because of which several materials are abnormally excreted in the urine, including increased amounts of phosphorus In these cases inorganic phosphorus in the serum is low Vitamin D therapy will cure neither of the preceding conditions

Another type of rickets is known as resistant rickets It is characterized by a low level of serum phosphorus for which no satisfactory explanation has been found In the treatment of this type of rickets vitamin D is most useful, but not when given in amounts customary for the treatment of rickets of vitamin D deficiency In order to provide beneficial results the doses of vitamin D must be large, often so large that close observation is required to prevent serious toxic effects The amount required varies with the child, the range being commonly 50,000 to 500,000 units daily The finding of the proper dose is a trial and error procedure and often the requirement seems not to remain constant

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[31] Krestin D Treatment of Rickets with Single Massive Doses of Vitamin D Lancet **248** 781 (June 23) 1945

Vitamin D is sometimes used in the treatment of hypoparathyroidism Perhaps more often dihydrotachysterol, a related product, is used for this purpose although vitamin D_2, and probably vitamin D_3 also, has identical effects in the treatment of this condition The doses required are large, and close observation of the level of calcium in the serum is required The daily amount required for maintenance varies from person to person, but usually is in the range of 0 6 to 1 0 mg of dihydrotachysterol or 3 to 5 mg (133,000 to 200,000 units) of vitamin D This type of treatment usually is initiated with amounts at least three times as large as the maintenance dose, the amount is decreased to maintenance dose when the level of calcium in the serum reaches normal The action of the parathyroid hormone is different from that of vitamin D in customary prophylactic amounts The hormone acts to maintain normal calcium values in the serum and at the same time decreases resorption of phosphorus by the kidneys Vitamin D in moderate amount acts to maintain normal inorganic phosphorus values in the serum and increases resorption of phosphorus by the kidneys However, vitamin D increases the calcium level in plasma when "toxic" doses are given Both substances, when vitamin D is given in large amounts, remove calcium and its associated minerals from the stores in bone

Several patients with other diseases have been reported as being benefited by massive doses of vitamin D These include patients with chronic arthritis, psoriasis, pemphigus and allergic conditions These reported good results have not been confirmed adequately, and it is believed that the evidence does not warrant the claim that vitamin D is beneficial

HYPERVITAMINOSIS D

Massive doses of vitamin D have been given to persons of various ages for various reasons, particularly in the treatment of chronic arthritis In some reported instances large doses have been given to infants, sometimes through error on the part of the mother Many instances of the toxic effects of large amounts have been recorded The amount that is toxic varies in different persons and even at different times in the same person Some adults show symptoms of toxicity with 150,000 units daily or even less [32]

Several symptoms and findings are common to most cases of intoxication Frequent among the early symptoms are anorexia, thirst lassitude and urinary urgency with or without polyuria Later symptoms include nausea, vomiting, diarrhea and abdominal discomfort The increased excretion of calcium in the urine may cause calcium deposits in the kidneys with resulting kidney damage and decreased renal function Anorexia nausea and vomiting lead to weight loss and subsequent debility, and damaged cells in various organs, arteries and arterioles become the repository for calcium salts While these changes usually accompany hypercalcemia and hyperphosphatemia, it has been shown in dogs that metastatic calcification can occur without increase in the level of calcium in the blood [33] If hypervitaminosis continues, the various changes lead to death

An additional finding in the hypervitaminosis D of infants and growing children is a dense deposition of mineral in the zone of provisional calcification in the metaphyses of long bones This deposition is made at the expense of the diaphysis

Vitamin D is stored in the body, and the effects of excessive dosage may be expected to be cumulative Frost and co-workers [32a] reported continued hypercalcemia, high urinary excretion of calcium and persistence of renal damage eight months after stopping treatment with 125,000 units of vitamin D daily

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Council on Physical Medicine and Rehabilitation

REPORT OF THE COUNCIL

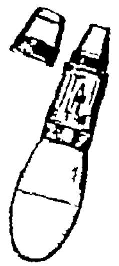
The Council on Physical Medicine and Rehabilitation has authorized publication of the following reports

Howard A Carter *Secretary*

DeVILBISS POCKET ATOMIZER NO 33 ACCEPTED

Manufacturer The DeVilbiss Company, 300-306 Phillips Avenue, Toledo 1 Ohio

The DeVilbiss Pocket Atomizer No 33 consists of four thermoplastic parts and a bulb assembly A cap liner and gasket made of oil-resistant inert material, seal the various parts to prevent leakage The firm states that the thermoplastic material was selected for resistance not only to breakage but also to interaction with chemicals commonly used in medicinal preparations and that evidence has been obtained to show that medicines will not affect the container nor be affected by it



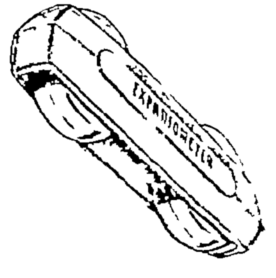
DeVilbiss No 33 Pocket Atomizer

On the basis of satisfactory evidence that the atomizer operates as claimed the Council on Physical Medicine and Rehabilitation voted to include the DeVilbiss Pocket Atomizer No 33 in its list of accepted devices

NEWMAN EXPANSOMETER ACCEPTED

Manufacturer Burton Manufacturing Company 11201 West Pico Boulevard Los Angeles 34

The Newman Expansometer is a device designed for use in measuring the chest expansion of patients especially patients in whom there is unequal movement of the two sides It consists of two steel tapes 36 inches (91 cm) long mounted in a handy plastic case the two tapes being attached to a pivot with swivel joints It is graduated in inches The unit is of convenient pocket size When packed for shipment it makes a package measuring 5 by 5 by 15 cm (2 by 2 by 6 inches) and weighing 140 Gm (5 ounces)



Newman Expansometer

Evidence was obtained that this device was useful clinically and the Council on Physical Medicine and Rehabilitation voted to include the Newman Expansometer in its list of accepted devices

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32 (a) Frost J W Sunderman F W and Leopold I S Prolonged Hypercalcemia and Metastatic Calcification of the Sclera Following the Use of Vitamin D in the Treatment of Rheumatoid Arthritis Am J M Sc **214** 639 (Dec.) 1947 (b) Covey C W and Whitlock H H. Intoxication Resulting from Administration of Massive Doses of Vitamin D with Report of 5 Cases Ann. Int. Med **25** 508 (Sept.) 1946

33 Bauer J M and Freyberg R. H Vitamin D Intoxication with Metastatic Calcification J A.M A **130** 1203 (April 27) 1946

State Medical Association, the cast, apparatus and other visual material employed originally were taken to Columbus, Ohio, for the show, which was given as a feature of the annual Institute for Education by Radio held May 4-7 Television is still a new field, but it is not too early for medical societies in even relatively small cities to give serious thought to future developments in order that they may be prepared when the opportunity presents A booklet providing basic information on this subject is available from the Bureau of Health Education at A M A headquarters Single copies can be obtained free of charge when requested on official stationery

PROTEIN STORES IN MAN

According to the concepts proposed by Whipple[1] and Schoenheimer[2] the proteins of the body exist in dynamic equilibrium with the plasma proteins Attempts have been made to evaluate the status of protein nutrition in human subjects by studying the plasma protein concentration In general, however, this approach has not been fruitful, since there are many factors in the body which tend to maintain constant the protein concentration of the plasma in the presence of various types of stresses In the past, other experimental approaches to evaluate the protein stores in man have been suggested Deuel and his co-workers[3] proposed a scheme in which the increase in urinary nitrogen following an injection of thyroxine was believed to be related to the degree of protein stores The subject for this study had been previously maintained on a protein-free diet until the urinary nitrogen loss became constant Later Localio and associates[4] evaluated the protein reservoir in surgical patients by determining the nitrogen content of the rectus abdominalis fascia, the protein content of this tissue being considered an index of the body protein stores A good correlation was noted between the protein content of this tissue and the absence of surgical complications, but the procedure has the disadvantage of forcing the patient to submit to surgical treatment before the evaluation of the protein reserves is possible Recently Harroun, Smyth and Levey[5] proposed a method of estimating protein stores in human subjects which has many points of interest, among which is the ease and simplicity of the determination In this procedure, the total circulating protein was determined before and after a rapid intravenous infusion of 1 liter of isotonic sodium chloride solution The total circulating protein is the resultant of multiplying the plasma volume by the protein concentration of the plasma expressed as grams per milliliter The saline infusion increases the plasma volume under these conditions, and with this stimulus there is a migration of protein either into or out of the vascular bed In the case of the 6 normal persons studied, who had adequate protein stores, there was in all cases an increase in total circulating protein after the saline infusion This was explained by a shift of protein from the labile protein reserves into the blood stream On the other hand, the 8 undernourished persons, who lacked adequate protein stores as judged by weight loss and history of poor dietary intake with signs of vitamin deficiencies, lost protein from the vascular system under identical conditions Apparently protein is lost along with the injected sodium chloride solution in undernourished subjects The change in total circulating protein and not its absolute amount was the factor which could be correlated with the amount of labile protein reserves The actual amount of total circulating protein like the concentration of protein itself may mask a state of undernutrition There are many conditions in which the objective evaluation of protein reserves of man would be of practical importance Increasing the armamentarium of medicine with more objective tests will undoubtedly increase the effectiveness of the various procedures now in use

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DIFFERENCES BETWEEN PERIPHERAL AND HEART BLOOD

Quinby,[1] Nichols[2] and their associates have called attention to alleged quantitative differences between peripheral blood and blood drawn directly from the heart Additional evidence in support of such differences is currently reported by Roofe[3] and associates of the Department of Anatomy, University of Kansas Comparisons were made on 56 normal guinea pigs A nick was carefully made in one ear of each animal so as to sever the marginal vein The first blood was wiped off, and counts were made from the freely flowing wound Afterward blood was drawn by a syringe directly from the heart The average count of the 56 peripheral blood samples was 6,269,000 red cells per cubic millimeter The average of the heart blood was but 5,499,000 red cells per cubic millimeter, or 88 per cent of the peripheral average In the same samples the white cell counts were 7,558 and 5,763, respectively, the heart-drawn white cell count being but 75 per cent of the peripheral white cell count Differential leukocyte percentages were identical Quantitative plasma differences were not reported No theory was suggested to account for the observed differences

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WASHINGTON NEWS

Medical Legislation

Important Bills

Although the Senate and House are occupied with such major legislation as the Economic Cooperation Administration and appropriations, committees are finding time to look into a wide range of bills of direct and indirect interest to the medical profession Even the sponsors concede that much of this legislation will not progress this session, but they are anxious for public hearings to prepare the way for next year

However, at least four important bills already approved by the Senate, conceivably could be enacted if the House clears sufficient time to consider them They are

S 522 providing for federal assistance in establishing and maintaining local public health units The American Medical Association has actively supported this bill

S 1453 which would provide federal assistance to medical education *The Association opposed this bill originally because it gave the surgeon* general too much power and because it pointed toward federal control and influence over medical schools The bill has been amended extensively but the A M A has not passed on the new draft

S 1411 which would set up a program for medical care of school age children The Association opposes this bill because it provides free medical treatment to all children without regard to parents ability to pay for the treatment.

Another bill with important medical interest, *H R 6000* for extension of Social Security has received final approval from the Senate Finance Committee It has passed the House in different form The Senate Committee turned down the House plan for setting up a permanent and total disability insurance program, which American Medical Association had opposed For the next few weeks, these four are important bills to watch

Veterans Administration Staff

Administrator Carl Gray apparently is now able to keep the Veterans Administration medical staff intact Here is what happened Last summer Mr Gray decided to overstaff professional medical personnel in preparation for the opening of new hospitals in the next two years, although extra money for this purpose was not provided in the budget Shortly after the first of the year the VA budget was tightened up and a reduction in force was ordered, affecting, among others, several hundred physicians However, before discharge slips went out Mr Gray rescinded the order as regards professional personnel He ran the risk of having to effect still more drastic reductions later in the year if he could not prevail on the Budget Bureau and Congress to see the problem his way The Budget Bureau studied the situation for several weeks, but finally approved an additional $2,191,000 for the Veterans Administration s use this fiscal year It is unlikely that Congress will reverse this decision However, Mr Gray still has to get his budget increased for the fiscal year beginning July 1, 1950 or he will have to face the same problem a year from now

Social Security

The Senate Finance Committee put in four months of intensive work on the enormously complicated Social Security Extension Bill (H R. 6000) before reaching agreement on major provisions Its decision to drop the section on permanent and total disability was announced in a simple statement that the Senate committee was not adopting this provision of the House bill The American Medical Association had actively opposed this section (but not the whole bill) for these reasons

1 Determination of disability would necessarily strain the relations of doctor and patient.
2 Disability benefits of this kind would promote malingering by patients and discourage their will to get well.
3 Coverage inevitably would be extended resulting in expansion of socialized medicine

For the medical profession, two additional decisions of the Senate committee are important In one, the committee voted to exclude from social security coverage "physicians lawyers dentists, osteopaths, chiropractors, optometrists, Christian science practitioners, naturopaths, professional engineers veterinarians and architects" Another decision of the Senate committee would make coverage optional with some hospitals and mandatory with others The test is whether the hospital is 'owned and controlled" by a religious denomination If it is a religious hospital under this definition coverage would be optional on the part of the hospital management If it is nonprofit and not a religious hospital, coverage would be mandatory with both employees and employer contributing on the basis of pay roll While the Senate bill would extend coverage to fewer persons than would the House bill, the former provides substantially increased monthly benefits For this reason prospects are that the House will be willing to accept most Senate provisions, although there is still plenty of time for change and compromise

Draft Extension

The outlook for members of reserve components of Army Navy and Air Force has been considerably clarified Early in the session, indications were that the present draft law would be allowed to expire this summer A tightening of the international situation, however has resulted in a change in this congressional attitude Chairman Carl Vinson (Democrat Georgia) of the House Armed Services Committee sponsored and won committee approval of an amendment to the draft extension bill (H R. 6826) Under it the law would be extended for two years, but with these two important restrictions on the President's powers as commander in chief 1 Registrations would be authorized, but inductions would have to be held up until they had been authorized by a joint concurrent resolution of Congress 2 Reserve officers could not be required to go on active duty until Congress had given similar approval From the point of view of national defense the intent of the amendment is to keep draft boards and the rest of the selective service structure in operation thereby avoiding a delay in the event of an emergency There is reason to believe that the amended bill, or one similar to it, will be passed this session

Hill-Burton Act

Public Health Service officials advise that overoptimism on the part of state hospital administrators is one major cause of the difficulties and misunderstandings this spring under the Hill-Burton Hospital Construction Act. The basic law states that authorizations of $150 000 000 may be voted each year to help finance hospital construction. This figure, officials emphasize, is merely a maximum and a guide, the actual authorizations must be approved by Congress each year However, the Public Health Service reports that too many state officials anticipate that authorizations always will be at this rate and plan accordingly This situation came to the surface when the House Appropriations Committee this year recommended $75 000,000, or half the amount it could have approved under the basic law The House subsequently raised this figure to $150 000,000, but the same situation might arise any year

Report of Defense Department

Military medical organizational changes, designed to effect economies and to bring about greater unification of the services are set forth in the Defense Department s semiannual report Here are a few highlights from the report In the last six months of 1949, 44 treatment facilities were closed out, resulting (with other economies) in a saving of 3,419 operating beds ——All Army hospital ships and trains have been discontinued except in unusual circumstances, military patients now are transported by air——A Defense Department committee is still studying the question of continuing free medical care to military dependents——The Army s ratio of beds to troop strength has reached a record low, and so has its sickness rate

ORGANIZATION SECTION

State Legislation

Massachusetts

Bills Introduced - H 2116 to amend the law relating to physical examinations of school children, proposes to require the board of health in certain communities to cause all **school children to be examined periodically** for defects in sight or hearing and other defects which might prevent them from receiving the full benefit of their school work Children who hold a certification from a practicing physician to the effect that all the requirements of the department of education and the department of public health have been complied with may be excused from this examination Also to be excused from the examination would be any child presenting a written request from his parents that they desire the examination not to be made on religious grounds The tests of sight and hearing would be made by teachers under directions prescribed by the department of public health H 2162 proposes the creation of a special commission to make an investigation and study relative to the establishment of a board of **registration of physical therapists** and regulating the practice of the profession of physical therapy H 2176 proposes the **establishment of a university** to teach among other things medical sciences

Bill Enacted H 2265 has become chapter 11 of the Resolves of 1950 It provides for the creation of a commission to make an investigation and study relative to **high blood pressure**

Michigan

Bills Introduced —H 23 X proposes provisions for the treatment and **rehabilitation of inebriates** S C Res 11-X proposes the creation of a committee to study the **mental health program** in the state S C Res 15 X proposes the creation of a committee to study problems relative to **unemployment insurance** S C Res 18 X proposes the creation of a special committee to investigate the establishment of an equitable basis for state payment to hospitals for services rendered to **crippled and afflicted children** S 25 X proposes the establishment of a **psychiatric and diagnostic clinic** under the supervision and direction of the state department of corrections to study examine diagnose and treat the physical and mental condition of persons committed to state prisons for sex offenses

Mississippi

Bills Enacted H 502 was approved April 6 1950 It amends the **law relating to coroners** by authorizing any coroner to order an autopsy on the body of a deceased person on written motion of the county prosecuting attorney or the district attorney Such autopsy shall be performed by a qualified surgeon or physician S C Res 16 was adopted April 10 1950 It memorializes the Congress of the United States not to enact any proposed legislation which will bring the practice of medicine under federal direction and control either through a form of **compulsory insurance** or any system of medical care designed for national bureaucratic control

New Jersey

Bill Introduced — S 156 proposes to authorize the state to lease from municipalities one half of the lands buildings and facilities within the municipality used **for medical center purposes** and to use such part of the facilities for the maintenance of a medical school a diagnostic center a hospital or the like

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Coming Medical Meetings

American Medical Association San Francisco June 26 30 Dr George F Lull 535 North Dearborn St Chicago 10 Secretary

Aero Medical Association, Chicago May 29 31 Dr Thomas H Sutherland 214 S State St Marion Ohio Secretary
American Association for the Surgery of Trauma Salt Lake City, June 22 24 Dr Charles G Johnston, 1512 St Antoine St Detroit 26 Secretary
American Association of Genito-Urinary Surgeons Hershey Penn, Hotel Hershey, May 24 26 Dr Norris J Heckel 122 S Michigan Ave Chicago 3, Secretary
American Association of the History of Medicine Boston, May 21 23 Dr Benjamin Spector, 416 Huntington Ave, Boston 15, Secretary
American Association on Mental Deficiency, Columbus Ohio Hotel Deshler Wallick, May 16 20 Dr Neil A Dayton P O Box 96 Willimantic, Conn, Secretary
American Broncho-Esophagological Association, San Francisco, Mark Hopkins Hotel May 25 26 Dr Edwin N Broyles 1100 N Charles St Baltimore 1 Secretary
American College of Chest Physicians, San Francisco, June 22 25 Mr Murray Kornfeld 500 N Dearborn St, Chicago 10, Executive Secretary
American College of Radiology, San Francisco June 25 Mr William C Stronach 20 N Wacker Drive, Chicago 6, Executive Secretary
American Congress on Obstetrics and Gynecology, New York Hotel Pennsylvania, May 14 19 Dr F Bayard Carter, Duke Medical School, Durham N C, Secretary
American Dermatological Association Jasper National Park Alberta Canada June 18-22 Dr Louis A Brunsting 102 Second Ave S W Rochester Minn Secretary
American Diabetes Association San Francisco Hotel Whitcomb June 24 25 Dr John A Reed 1 Nevins St Brooklyn 17 Secretary
American Geriatrics Society New York Hotel Commodore June 1 3 Dr Malford W Thewlis, 25 Mechanic St., Wakefield, R I, Secretary
American Hearing Society, Chicago, Drake Hotel June 15 17 Mrs. Frances F Lee 817 Fourteenth St N W Washington 5 D C Secretary
American Heart Association San Francisco Fairmont Hotel June 22 25 Dr John J Sampson 1775 Broadway, New York 19, Secretary
American Laryngological Association San Francisco May 23 24 Dr Louis H Clerf 128 S Tenth St Philadelphia 7 Secretary
American Laryngological Rhinological and Otological Society, San Francisco May 25 27 Dr C Stewart Nash 277 Alexander St. Rochester 7 N Y Secretary
American Medical Women's Association Carmel Calif, June 20-22 Dr Grace Talbott 909 Hyde St., San Francisco 9 Secretary
American Neurological Association Atlantic City Claridge Hotel June 12 14 Dr H Houston Merritt 710 W 168th St. New York 32 Secretary
American Ophthalmological Society, Hot Springs Va., The Homestead May 31 June 2 Dr Maynard C Wheeler 30 W 59th St New York 19 Secretary
American Orthopedic Association, Virginia Beach, Va May 23 26 Dr C Leslie Mitchell Henry Ford Hospital Detroit 2 Secretary
American Otological Society San Francisco May 21 22 Dr Gordon D Hoople 1100 E Genesee St Syracuse 10 N Y Secretary
American Radium Society, New York, Roosevelt Hotel, May 25 26 Dr Hugh F Hare 605 Commonwealth Ave. Boston 15 Secretary
American Society for the Study of Sterility San Francisco Sir Francis Drake Hotel June 24 25 Dr John O Haman, 490 Post St San Francisco 2 Secretary
American Society of X Ray Technicians Columbus Ohio, Deschler Wallick Hotel May 28 June 2 Genevieve J Eilert R T, 16 Fourteenth St. Fond du Lac Wis Executive Secretary
American Urological Association Washington D C, Hotel Statler, May 29 June 1 Dr Charles H deT Shivers, Boardwalk National Arcade Bldg Atlantic City N J Secretary
Association for Physical and Mental Rehabilitation, Memphis Tenn, Hotel Peabody May 23 27 Mr Benjamin Forman 57 Granger St. Canandaigua N Y Secretary
Association for the Study of Internal Secretions, San Francisco June 23 24 Dr Henry H Turner 1200 N Walker St Oklahoma City 3 Secretary
Conference of Presidents and Other Officers of State Medical Associations San Francisco Palace Hotel, June 25 Mr John E Farrell 106 Francis St Providence, R I Secretary
Illinois State Medical Society, Springfield, Illinois State Armory May 23 25 Dr Harold M Camp, 224 S Main St. Monmouth Secretary
Kansas Medical Society Wichita May 15 18 Dr D D Vermillion 512 New England Bldg, Topeka Secretary
Maine Medical Association, Poland Spring, June 18 20 Dr Frederick R Carter 142 High St Portland 3, Secretary
Massachusetts Medical Society Boston, Hotel Statler May 16 19 Dr *H Quimby Gallupe 8 Fenway Boston 15 Secretary*
Medical Library Association, Boston June 19 22 Miss Helen Hlavac 209 East 23d St New York 10 Secretary
Minnesota State Medical Association Duluth, June 12 14 Dr B B Souster 496 Lowry Medical Arts Bldg St Paul 2, Secretary
New York Medical Society of the State of New York May 8 12 Dr Walter P Anderton 292 Madison Ave. New York 17 Secretary
North Dakota State Medical Association, Grand Forks May 27 30 Dr O A Sedlak 702 First Ave S, Fargo Secretary
Ohio State Medical Association Cleveland May 16-19 Mr Charles S Nelson, 79 E State St Columbus 15 Executive Secretary
Oklahoma State Medical Association, Oklahoma City June 4 7 Dr Lewis J Moorman 210 Plaza Court Oklahoma City, Secretary
Society of American Bacteriologists Baltimore, May 15 19 Dr John E Blair 1919 Madison Ave, New York 35, Secretary
South Carolina Medical Association, Myrtle Beach, May 16-18 Dr Julian P Price 105 W Cheves St Florence, Secretary
South Dakota State Medical Association, Mitchell May 20 23 Dr Roland G Mayer, 22½ S Main St, Aberdeen Secretary
Western Association of Industrial Physicians and Surgeons San Francisco June 25 Dr Christopher Leggo, C & H Sugar Refining Corp Crockett Calif Secretary
Western Branch American Public Health Association Portland, Ore. May 30 June 1 Mr Walter S Mangold University of California Berkeley Calif Secretary

International Meetings

International Anatomical Congress, Oxford, England, July 25 28 Secretariat Anatomical Society of Great Britain and Ireland, St Mary's Hospital, Cambridge, England
International and Fourth *American* Congress on Obstetrics and Gynecology, New York Hotel Pennsylvania, May 14 19 Dr Fred L Adair 161 E Erie St Chicago 11 Information Headquarters
International Cancer Research Congress, Paris, France, July 17 22 Secretariat, 6 Ave Marceau Paris 8, France.
International Congress of Ophthalmology London, England, July 17 21 Mr Keith Lyle 45 Lincoln's Inn Fields, London W C 2, England Secretary
International Congress on Asthma Mont Dore France, June 3-4 Secretariat 59 rue Bonaparte Paris, France
International Pediatric Cong Zurich Switzerland, July 24 28 Dr L Emmet Holt Jr 477

GOVERNMENT SERVICES

NAVY

OPENINGS AVAILABLE IN INTERN PROGRAM

Applications are still being accepted from qualified candidates interested in intern training in civilian hospitals under the Navy's Intern Program. Appointments to lieutenant (junior grade) in the Medical Corps of the Naval Reserve are provided, and the intern receives his training at the activity of his own selection while receiving the pay of a naval officer of that grade. When ordered to duty at a Naval medical activity on completion of training the doctor also qualifies for an additional compensation of $100 per month over and above his pay and allowances. Other benefits to be obtained are a $250 uniform allowance, reimbursement of transportation costs for dependents and household effects from their home to station of duty, retirement benefits and an opportunity for later advanced professional training.

The prospective candidate must be a graduate of an approved medical school, must have contracted for a rotating internship of 12 months' duration (or be in the second year of a 24 month internship, one year of which must be rotating) at an approved hospital or medical center, must be able to meet the eligibility requirements for initial appointment and must agree to serve on active duty for at least 24 months after completion of the training. Application forms or information may be obtained at the nearest Office of Naval Officer Procurement.

DATA ON ATOMIC RADIATION AVAILABLE

The Navy's research data concerning the effects of atomic radiation on living tissue are being made available to civilian physicians and medical officers of the armed services and federal agencies. To implement the program pathologic slide study sets and appropriate literature, prepared by the Naval Medical Research Institute, have been provided naval hospitals throughout the country. These study slides concern lesions produced by total body ionizing radiation. The tissue sections were prepared from swine which had been exposed to one million and two million volt roentgen rays. The response of the tissues of these animals to radiation is comparable to the response of tissues in man in atomic bomb radiation.

Each naval hospital has been instructed to arrange with the local county medical society, commanding officers of armed forces reserve components and federal agencies in their areas for interested physicians to join with Navy doctors in the use of this study material. While this material is considered to be of value to the practicing physician as well as to pathologists, it does not replace or supplement any established course concerning the effects of atomic radiation. Future plans for supplying additional study material will depend on the interest manifested by those in a position to benefit from the offering.

PERSONAL

Capt. David Greene (MC, USN) of Boston has recently been certified by the American Board of Surgery. Captain Greene is now on duty at the Naval Hospital, Corpus Christi, Texas.

Lieut. William I. Neikirk (MC) has been certified by the American Board of Pediatrics.

Lieut. (jg) Clifford R. Hall (MC, USNR) of Fort Worth, Texas, has been recalled to active duty at his own request. Dr. Hall is being assigned to Naval Hospital, Pensacola, Fla.

Lieut. (jg) John J. Downey of Belle Terre Park, N. Y., reserve medical officer on active duty at the Amphibious Base, Little Creek, Va., has been appointed to the regular Navy Medical Corps.

Lieut. (jg) James Seward Ketcham (MC, USNR) of Rossville, Ind., has been recalled to active duty at his own request and has been assigned to the Administrative Command, Naval Training Center, San Diego, Calif.

PUBLIC HEALTH SERVICE

HEALTH MISSION TO LIBERIA

Dr. Hildrus A. Poindexter, director of the United States public health mission to Liberia, recently returned to the homeland to consult with Public Health Service officials. In his report he outlined programs for the control of Liberia's major disease problems—malaria, smallpox and intestinal parasites. Malaria has been the subject of a two year testing program with dichlorodiphenyltrichloroethane (DDT) spraying and other antimosquito measures and the antimalarial drug chloroquine. Dr. Poindexter stated that malaria was reduced 90 per cent in some sections of Liberia by use of the drug. Similar results were also obtained by DDT spraying and other antimosquito measures.

A recent smallpox epidemic marked the beginning of a vaccination program which has been so successful that it is now difficult to find a Liberian who has not been vaccinated. Smallpox is no longer a public health problem there. Extensive surveys show that over half the Liberian people are suffering from one to four types of intestinal worms, but if survey recommendations can be applied on a national scale, progress can be made in the control of this disease also.

The health expenditures of the Liberian government have increased 500 per cent since the mission was established there in 1944. The public health program of the mission is designed so that it can be taken over by the Liberian government as soon as a sufficient number of workers have been trained to carry on the work. The mission has established a training school for nurses and technicians and operates a model clinic in Monrovia.

RESEARCH GRANTS

Grants totaling $863,496 to aid laboratory and clinical center research in forty-eight nonfederal institutions in twenty-one states and the District of Columbia have been announced by the Federal Security Administrator. All the grants are for continuation of previously supported projects. These investigations include clinical treatment of leukemia with anti folic acid compounds, studies of the effect of hormone imbalances on the control and causation of tumors, efforts to synthesize and reduce the toxic reaction of colchicine and use of high voltage radiation from the betatron in the treatment of deep seated cancers.

NEW $10,000,000 CENTER IN ATLANTA

The construction of a new headquarters in Atlanta, Ga., for the Communicable Disease Center of the Public Health Service is now in the planning stage. Dr. R. A. Vonderlehr, who is in charge of the Communicable Disease Center, announced that the cost of the five building center is expected to approximate $10,000,000. In addition to the main building there will be an infectious disease building, a building to house research animals, a maintenance-storage building and a boiler house. The new headquarters will be adjacent to Emory University on a 15 acre plot donated by the university. A number of members of the staff will teach at the school and some of the school faculty will serve as consultants to the center.

The Communicable Disease Center, which grew out of a wartime project for the control of malaria in war areas, assists the states, on request, in the prevention and control of malaria, poliomyelitis, rabies, typhus and other communicable diseases Among its services are epidemiologic studies, the evaluation of laboratory tests and the testing of insecticides and other chemicals used as public health tools The center conducts training programs in many phases of laboratory work and disease control and gives assistance to state and local health agencies in times of emergency The Communicable Disease Center has about 500 employees at present When the new headquarters is completed the staff will number about 700

PERSONAL

Dr William Y Hollingsworth recently retired from the Public Health Service, after 30 years' service He had been medical officer in charge, San Francisco Marine Hospital, since 1944 and has been succeeded by Dr C R Mallary

Miss Marion D Floyd of Boston, former president of the Massachusetts Dietetics Association, has been appointed chief of the Dietetic Branch of the Division of Hospitals of the Public Health Service

VETERANS ADMINISTRATION

APPOINT MEDICAL DIRECTOR

Dr T M Arnett has been assigned as medical director of the Washington Area Field Supervising Service, comprising nine states, the District of Columbia and Puerto Rico, succeeding Dr Delmar Goode, who has been appointed manager of the Veterans Administration hospital at Little Rock, Ark, now nearing completion Dr Arnett served in the Army Medical Corps from 1931, when he was graduated from the University of Maryland Medical School, until 1947, when he joined the VA During World War II he commanded a general hospital overseas and concluded his army career as port surgeon at LeHavre, France

NEW YORK LOANS 740 BEDS IN HOSPITAL

The Veterans Administration has completed an arrangement with the New York State Department of Mental Hygiene for the use of 740 beds in the state-owned Halloran Hospital on Staten Island, New York, until Dec 31, 1952 This will provide for the care of all paraplegic and general medical patients now under VA care in Halloran The agreement also enables VA to use one pavilion for tuberculous patients Tuberculous patients who cannot be cared for in the pavilion will be transferred to other VA hospitals in the New York area All neuropsychiatric patients in Halloran will be transferred to the new VA hospital at Peekskill, N Y VA is constructing a 1,250 bed hospital in Manhattan and will have it completed prior to Dec 31, 1952

PERSONAL

Dr George O Pratt has been named manager of the Manchester Veterans Administration Hospital, New Hampshire He was formerly chief of professional service at the medical office in Boston

Dr Franklin G Ebaugh, professor of psychiatry, University of Colorado School of Medicine, Denver, conducted a two day neuropsychiatric seminar at the Veterans Administration Hospital, Gulfport, Miss, March 23-24

Dr James A Halsted, Boston, has resigned as chief of the medical service of the Faulkner Hospital in order to accept a full time position as section chief in the Wadsworth Veterans Administration Hospital Los Angeles

MISCELLANEOUS

NEW CHAIRMAN OF RESEARCH AND DEVELOPMENT BOARD

William Webster, Executive Vice President of the New England Electric System, Boston was sworn in as Chairman of the Research and Development Board by Secretary of Defense Louis Johnson, March 15 Mr Webster's first association with the Board was on its inception in 1946 as the Joint Research and Development Board, when he served as a consultant From September 1948 to September 1949 he was chairman of the Board's Committee on Atomic Energy, deputy to the Secretary of Defense on Atomic Energy Matters, and Chairman of the Military Liaison Committee to the Atomic Energy Commission Prior to that time he was consultant to the Atomic Energy Commission from 1947 to 1948 Since October 1949, Mr Webster has been a consultant to the Office of the Secretary of Defense and the Atomic Energy Commission The Research and Development Board is composed of a civilian chairman and two representatives from each of the three military departments

RESEARCH PROPOSALS IN BIOLOGY AND MEDICINE

The U S Atomic Energy Commission approved 41 research proposals in the field of biology and medicine from Nov 1, 1949, through March 9, 1950, it was announced by Dr Shields Warren, director of the Atomic Energy Commission Division of Biology and Medicine Thirty-four of the proposals are for new research projects at universities, hospitals and private research laboratories, six are for renewals of existing projects, and one covers a working agreement with the Fish and Wildlife Service of the Department of the Interior The proposals were submitted by investigators at 35 different institutions located in 20 states and the District of Columbia Contracts covering the 34 new projects and six renewals of existing projects are being negotiated by AEC Operations Offices Award of the 34 new contracts will bring to 194 the number of AEC-supported research projects now being carried on in biology and medicine at 87 universities, hospitals and private research centers About $5 000,000 has been set aside for support of such research in non-AEC agencies during the current fiscal year The scope of the program under which AEC research support is extended in biology and medicine comprises the biologic effects of radiations, including medical and cancer research and, to a limited extent, the use of radioisotopes as tracers

PREVENTION OF AIR POLLUTION COSTS MILLIONS

With industry and government spending about $100,000,000 a year to prevent the spread of air contaminants, the discussion of the latest control equipment at the government-sponsored conference on air pollution in Washington, D C, May 3-5 aroused interest, Secretary of the Interior Chapman announced Installation of new control equipment, analysis of various industrial processes, and stack sampling for contaminants cost about $10,000,000 in Los Angeles County, Calif, alone during the past two and one-half years, Secretary Chapman said As a result of air pollution regulations, various cities in New York spent more than $2,000,000 modernizing plants during 1948 and at least $3,500,000 during 1949, according to estimates of the state health department

All types of modern equipment used to control air pollution including bag filters, scrubbers and sonic collectors, were discussed at the panel on equipment at the first United States Technical Conference on Air Pollution This conference was proposed several months ago by the President, who requested Secretary Chapman to organize an interdepartmental government committee to sponsor it Leading authorities on air pollution from government, industry and educational and research institutions participated

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest such as relate to society activities new hospitals education and public health Programs should be received at least two weeks before the date of meeting)

ARIZONA

Public Health Association.—The annual meeting of the Arizona Public Health Association was held April 20-21 at Safford The sessions were conducted on a workshop plan and the theme of the meeting was 'Public Health and Arizona's Economy" Dr Harald M Graning, U S Public Health Service Washington, D C, spoke on 'Public Health—1950 Dr Charles E Reddick, Phoenix, succeeded Mrs Marion Sprague as president of the association Mr Roy N Jones supervisor Phoenix Health Department, was chosen president elect and Mrs Helene T Bennett of Yuma, vice president

ARKANSAS

Dr Poe Heads Neuropsychiatry Department—Dr John S Poe Columbia University College of Physicians and Surgeons has been appointed professor of neuropsychiatry and head of the department at the University of Arkansas School of Medicine effective May 1 Dr H Lee Hall has been appointed associate professor of neuropsychiatry effective July 1 Dr Hall was formerly associated with the Long Island College of Medicine

Narcotic Violations—Dr Frank A Norwood of Mena pleaded guilty to violation of the federal narcotic laws in the U S District Court in the Western District of Arkansas on January 23 Sentence was suspended and he was placed on probation for a period of two years

Dr Luther M Lile of Hope pleaded guilty in the U S District Court at Fort Smith to an information charging violation of the federal narcotic laws On March 3 sentence was suspended and he was placed on probation for a period of two years

GEORGIA

Offer Health Tests to Public—The 300 000 residents of Atlanta are being offered health tests for six major conditions during April, May and June tuberculosis, syphilis, diabetes anemia dental and oral defects and correct weight. The testing program is a combined effort of the Atlanta Fulton and DeKalb County and the state and federal health departments Twelve testing stations have been established in locations designed to make it easy for the public to participate Persons examined who are suspected of having disease will be referred to their physicians or dentists for complete diagnosis and treatment Facilities are available for all persons over 12 years of age A citizens committee for the Greater Atlanta health program was formed at a meeting of the fifty representatives from organizations in the metropolitan area Volunteer workers from these organizations assist in the mass health improvement project Mass health screening has the support of the Fulton County Medical Society

ILLINOIS

College Health Association.—The spring meeting of the Illinois Section of the American College Health Association was held at the Northern Illinois State Teachers College May 6 Dr C Howard Hatcher, professor of orthopedic surgery at the University of Chicago, spoke on "Athletic and Other Common Injuries on the Campus' and Dr William G Beadenkopf assistant professor of medicine, University of Chicago, discussed Histoplasmosis in Illinois"

Civil Service Positions for Physicians—The Illinois Civil Service Commission announces examinations for physician I psychiatrist I and tuberculosis control physician I principally for employment in state institutions It is anticipated that the Illinois residence requirement will be waived for all these examinations, which offer opportunities for immediate employment and career service Salary ranges are physician I, $4 080 to $5 280 psychiatrist I and tuberculosis control physician I $4 740 to $6 408 Final date to apply is June 16 Information may be obtained from the Civil Service Commission, 501 Armory Building, Springfield.

Newspaper Edition to Be Dedicated to County Doctors—The *Illinois State Journal and Register* of Springfield in cooperation with the Sangamon County Medical Society will publish a special edition dedicated to the medical profession in general and Sangamon County physicians in particular on May 21 The occasion will be in honor of the 110th annual session of the Illinois State Medical Society and the 50th anniversary of the Sangamon County Medical Society The convention will be held May 23-25 in the State Armory in Springfield and will be known as The Andy Hall Annual Meeting The story of medical progress building of hospitals clinics and public health service facilities will be included in the edition

Chicago

Hektoen Lecture—Dr Jesse E Edwards assistant professor of pathologic anatomy Mayo Foundation University of Minnesota Minneapolis, will deliver the twenty-sixth Ludvig Hektoen Lecture of the Frank Billings Foundation of the Institute of Medicine of Chicago May 26 at the Palmer House His subject will be Structural Changes of the Pulmonary Vascular Bed and Their Functional Significance in Congenital Cardiac Diseases '

Summer Camp for Diabetic Children.—This camp will be conducted for the second season under the auspices of the Chicago Diabetes Association at Holiday Home Lake Geneva Wis August 8-29 In addition to the regular personnel of the camp there will be a staff of dietitians and resident physicians trained in the care of diabetic children furnished by the association. Boys and girls aged 8-14 will be accepted at a fee of $120 which covers three weeks camping and transportation from Chicago Fee reductions may be arranged according to circumstances Correspondence should be addressed to the Chicago Diabetes Association 950 East 59th Street, Chicago 37

Personals—Dr Paul A Campbell instructor department of otology Northwestern University Medical School reported in April to the Air Force School of Aviation Medicine at Randolph base, for two weeks active duty as a colonel Dr Campbell was with the School of Aviation Medicine's department of otolaryngology from 1941 until 1942 and director of research at the aviation medical school from 1942 until 1945 He was then assigned to the air staff intelligence team to study German Air Force development until relieved from active duty in 1946——Dr Meyer Perlstein will address the annual meeting of the Argentina Pediatric Society in Cordoba Argentina May 22-23 on 'Newer Drugs in the Therapy of Epilepsy In addition he will lecture, and have an exhibit in clinicopathologic correlation, on the brain in cerebral palsy

Society of Physical Medicine and Rehabilitation.—A group of persons interested in physical medicine and rehabilitation met April 19 to organize the Chicago Society of Physical Medicine and Rehabilitation. Dr Louis B Newman chief, physical medicine rehabilitation Veterans Administration Hospital Hines, was elected president Dr Charles O Molander, director, department of physical medicine, Michael Reese Hospital, vice president, and Dr Arthur A Rodriquez assistant head of the department of physical medicine and rehabilitation at Research and Educational Hospitals secretary treasurer Drs H Worley Kendall Disraeli W Kobak and James T Case were elected to the Board of Trustees to serve for a period of three two and one years, respectively The next meeting will be held May 19 dinner at 6 30 p m, at the medical center Y M C A., 1804 West Congress Street. The guest speaker will be Dr Richard Kovacs of New York, secretary of the American Congress of Physical Medicine. His subject will be The Evolution of Physical Medicine Rehabilitation in Organization Work '

INDIANA

District Medical Association.—The Eleventh District Medical Association will meet at Marion May 17 Forenoon clinics will be held at the Marion General Hospital and at the Veterans Administration Hospital, where the afternoon scientific program will be held. Guest lecturers will be Dr John Frost, of the Eli Lilly & Company, who will speak on "Arthritis', Dr Philip Thorek, Chicago Jaundice and Dr Donald E Hale, Cleveland, 'Nerve Block for Anesthesia Diagnosis and Therapy There will also be a speaker in the evening

KENTUCKY

Postgraduate Courses—The University of Tennessee College of Medicine Memphis is presenting a postgraduate course in six fields of medicine for general practitioners of West Kentucky at the request of the Kentucky branch of the American Academy of General Practice Lectures are being given each Wednesday night for six weeks at the Jennie Stuart Memorial Hospital in Hopkinsville After the addresses a panel discussion is held. Drs F Theodore Mitchell James G Hughes and James N Etteldorf of the pediatrics department presented the first lectures April 19 The department of surgery presented a symposium on vascular surgery April 26 Dr Harwell Wilson discussed newer concepts of peripheral vascular surgery Dr Charles B Olim cardiovascular surgery and Dr Francis Murphey intracranial vascular problems Lectures in the field of obstetrics and gynecology were presented May 3 Drs Conley H Sanford, Lemuel W Diggs, Philip Bleecker and Samuel F Stram conducted the symposium on medicine May 10 On May 17 Dr Cyril J Ruilmann, Dr Joseph B Parker Jr and Dr Bruce E Walls will speak on problems of neuropsychiatry The final conference will be held May 24, with lectures in the field of urology

MASSACHUSETTS

Dr Winslow Wins Shattuck Award—Dr Charles-Edward A Winslow professor emeritus of public health, Yale University School of Medicine, New Haven, Conn, and editor of the *American Journal of Public Health,* recently was awarded the first Lemuel Shattuck Award at the sixtieth anniversary meeting of the Massachusetts Public Health Association in Boston The award is for distinguished service by a New Englander in the field of public health The Shattuck award was made on the hundredth anniversary of the filing of the pioneer Shattuck's 'Report of the Sanitary Commission of Massachusetts" which eventually became the national blueprint for public health programs

Appoint Professor of Business Administration—Dr Neil L Crone Boston has been appointed professor of business administration at the Harvard Graduate School of Business Administration George F Baker Foundation Dr Crone graduated from Grinnell College, Iowa in 1925 He was awarded a Rhodes Scholarship at Oxford University, England, where he received his B A (1927) M A (1927) and Ph D (1929) degrees In 1931 he was awarded an M D degree by Harvard Medical School In World War II he served as medical consultant to the U S First Army in the United States, England, France Belgium Germany and the Philippines, and was chief of medicine at Walter Reed General Hospital, Washington D C

NEW YORK

Dr Morgan Heads Bacteriology Department—Dr Herbert R Morgan, professor of medicine at the University of Michigan Medical School, Ann Arbor, has been appointed professor of bacteriology and chairman of the department of bacteriology and preventive medicine at the University of Rochester School of Medicine and Dentistry Since 1938 Dr Morgan has also been associate professor of epidemiology in the university's School of Public Health His appointment at the University of Rochester Medical School, where he also will be associate professor of medicine is effective July 1 He will replace Dr George P Berry, formerly associate dean and chairman of the bacteriology department, who left to become dean of Harvard Medical School, Boston July 1, 1949 Dr Morgan is a graduate of Harvard Medical School While studying there he held the Taussig traveling fellowship, the De Lamar student research fellowship and the Charles Eliot Ware and John Ware memorial fellowships He served in the U S Army Medical Corps from 1943-1946, assigned to the U S Typhus Commission, and also was visiting investigator in the International Health Division Laboratories of the Rockefeller Institute for Medical Research From 1946-1948 he was a senior fellow in medical sciences of the National Research Council at Thorndike Memorial Laboratory Boston City Hospital and a research fellow in medicine at Harvard

New York City

Alumni Award to Dr Barr—At the annual Alumni Day exercises of Cornell University Medical College March 23 the second annual award for distinguished service to medicine was presented to Dr David P Barr professor of medicine at Cornell and past president of the American College of Physicians Dr Barr addressed the alumni on The Significance of Cryoglobulinemia"

Jones Orthopedic Lecture—Dr Philip Wiles of London will deliver the annual Sir Robert Jones Lecture on "Posture and Defects of Posture" May 31 at 8 30 p m at the Hospital for Joint Diseases Dr Wiles is treasurer of the British issue of the *Journal of Bone and Joint Surgery* and consultant orthopedic surgeon, Middlesex Hospital, London The Sir Robert Jones lectureship was established by the hospital in 1930 in honor of the man who is considered by many to be the father of modern orthopedic surgery Sir Robert died in 1933

New Maimonides Hospital Unit—The new eight story, $1,750,000 Maimonides Hospital Surgical and Medical Building in Brooklyn was opened April 16 It adds 186 beds to the hospital's present capacity of 550 and houses seven operating suites The new structure will enable the transfer of 100 beds in its present main building to ward care, increasing that service to 225 beds The building will accommodate both private and semiprivate patients It was built by the Federation of Jewish Philanthropies

NORTH DAKOTA

Annual State Medical Meeting—The North Dakota State Medical Association will hold its annual meeting in the Dacotah Hotel, Grand Forks, May 27-30, under the presidency of Dr Willard A Wright, Williston Out of state speakers include

John S Lundy Rochester Minn, Use of Anesthesia in General Practice
John T Reynolds Chicago Cancer of the Large Bowel
Nelson W Barker, Rochester Minn Diagnosis and Treatment of Chronic Occlusive Arterial Disease of the Extremities
Robert B Radl, Bismarck, N D, Treatment of Medical Emergencies
Lester D Dragstedt, Chicago Surgical Treatment of Peptic Ulcer
Charls W Mayo Rochester, Minn, Significance of Tumors of the Neck
Albert V Stoesser Minneapolis Respiratory Allergy in Children
Leo G Rigler, Minneapolis Cancer of the Lung
Owen H Wangensteen, Minneapolis, Surgeon's Role in Management of Cancer of the Alimentary Tract.
Lester J Palmer Seattle Application of the Insulins in the Treatment of Diabetes Mellitus with Comments on Diabetes Detection
Donald R Nichols, Rochester, Minn, Use of Antibiotics in General Practice
Leonard A Lang Minneapolis, The Hysterectomy Problem

The annual banquet will be at the Grand Forks Country Club Monday evening Special societies will hold luncheon meetings An organizational meeting will be held Tuesday for the formation of a North Dakota Diabetic Association, at which time Dr Palmer, president elect of the American Diabetes Association will be the guest speaker

RHODE ISLAND

State Medical Meeting—The Rhode Island Medical Society's annual meeting was held in Providence May 10-11, under the presidency of Dr Peter P Chase, Providence Out of state speakers included

Francis D Moore, Boston, Surgical Operation as an Event in the Natural History of Ulcer Disease
John T Farrell Philadelphia, Role of Roentgenology in Management of Duodenal Ulcer
James H Means Boston Indications for Treatment of Graves' Disease
James L Gamble Boston The Charles V Chapin Oration, Body Fluids and the Rationale of Fluid Therapy
R B Robins Camden, Ark, The Months Ahead
John J Poutas New York, Industrial Medicine and the Private Practitioner
Mr Thomas A Hendricks, American Medical Association Chicago What's New at the A M A

The Woman's Auxiliary met in Rumford May 10, and the state Association of Medical Record Librarians met on Wednesday Technical exhibits were shown

SOUTH DAKOTA

State Medical Meeting at Huron—The South Dakota State Medical Association will hold its annual meeting May 21-23 in Huron under the presidency of Dr William H Saxton, Huron Out of state speakers include

James C Sargent, Milwaukee, Bladder Tumors
Mrs Paul Craig, Reading, Pa The Auxiliary in Public Relations
Placidus J Leinfelder Iowa City Diagnostic Significance of Ocular Complaints
F Stewart Taylor, Denver, Female Pelvis Surgery—When Is It Necessary?
Louis J Karnosh Cleveland Common Forms of Neuritis and Therapy
Edwin J Pulaski, Fort Sam Houston, Texas, Antibiotic Therapy
Fred W Wittich Minneapolis, Treatment of Acute Allergy in General Practice
Vernon L Hart Minneapolis Congenital Disease of Hip
Earl C Elkins, Rochester, Minn Treatment of Convalescent Poliomyelitis
Raymond Householder, Chicago Severe Injuries About the Ankle Joint
Galen M Tice Kansas City, Kan, Differential Diagnosis of Malignancy in the Gastrointestinal Tract.
Mr Ed O Connor Chicago, The Farewell State

WASHINGTON

Statue of Dr Whitman in Capitol—In 1949 the state legislature by an almost unanimous vote approved a bill which would place a statue of Dr Marcus Whitman, the first American physician in the Pacific Northwest, in the Capitol Building in Washington, D C Last September the Washington State Medical Association endorsed the action of the legislature and commended the state in its choice of honoring a physician as a great pioneer Up to the present, three states have thus honored physicians in our national capitol Kentucky has recognized Dr Ephraim McDowell (1771-1830), who performed the first ovariotomy in 1809, Florida presented a statue of Dr John Gorrie (1803-1855), inventor of the ice machine and mechanical refrigerator, Georgia erected a statue of Dr Crawford W Long (1815-1878), discoverer of ether anesthesia (1842) It is hoped that individual physicians will share modestly in the costs of erection of the statue Contributions may be in pennies or dollars, but it is specifically requested that no contribution exceed $5 Checks should be made out to the Marcus Whitman Foundation, Inc, and should be mailed to that organization in care of Dr Willard Goff, 432 Stimson Building, Seattle 1

WEST VIRGINIA

Rabies in Kanawha County—Kanawha County closed its extensive program against rabies April 21 Of the 24 000 dogs in Kanawha County about 18 000 were vaccinated During the first 10 weeks of this year 41 out of 60 dogs heads examined were found infected with rabies More than 25 persons bitten by dogs have undergone the Pasteur treatment as a precautionary measure Last fall a young boy died from rabies after being bitten The county was quarantined last fall by the State Department of Agriculture Officials of Charleston Dunbar Nitro and St Albans appointed special agents equipped with trucks to effect stray control The Kanawha-Charleston Health Department established a schedule of free antirabies vaccination clinics throughout the county Aided by a sound truck loaned by the U S Army recruiting station the promotion of vaccination was carried on by newspaper stories and radio announcements The clinics were manned by local veterinarians and the vaccine was supplied by the state Hygienic Laboratory

WISCONSIN

Surgeons Meet—A meeting of the Wisconsin Section of the International College of Surgeons will be held at the Jackson Clinic in Madison May 20 from 9 to 12 noon A luncheon at the Hotel Loraine will close the meeting

Dr Baldwin to Edit State Journal—Effective with the March issue, Dr Robert S Baldwin of Marshfield took over on a two year term as editor of the *Wisconsin Medical Journal* succeeding Dr Karl H Doege of Marshfield who has served more than 10 years in that capacity Both physicians are on the staff of the Marshfield Clinic Dr Baldwin graduated from Rush Medical College in 1932

GENERAL

Western Public Health Association—The seventeenth annual meeting of the Western Section of the American Public Health Association will be held at the Masonic Auditorium Building in Portland Ore May 30 to June 1 The program includes panel discussions on Supplying Future Health Personnel, Planning Effective Nursing Services for the Community and Steps in Developing a Mental Health Program The first John J Sippy Memorial Lecture will be delivered by Dr William P Shepard San Francisco at the Wednesday afternoon session on 'The Life and Work of John J Sippy

Employment of Hard of Hearing—More than 5 000 jobless or unsuitably employed deaf persons were prepared for and placed in self-sustaining employment during 1949 through state-federal vocational rehabilitation services for civilians according to the Federal Security Agency s announcement in connection with observance of National Hearing Week May 7-13 This brings to a total of 22,668 the number of persons of working age with impaired hearing who have been rehabilitated in the six years of state-federal operations under strengthened legislation

American Otological Society—This society will hold its annual meeting May 21-22 at the Hotel Mark Hopkins San Francisco under the presidency of Dr Philip E Meltzer Boston Speakers invited to present papers include

Merle Lawrence Ph D and Ernest G Wever Ph D Princeton N J Recent Investigation of Sound Conduction.
Walter P Work San Francisco Lesions of the External Auditory Canal
Jerome A Hilger St. Paul Vasomotor Labyrinthine Ischemia
Victor Goodhill Los Angeles The Nerve Deaf Child Significance of Rh Maternal *Rubella* and *Other Etiologic Factors*

The President s Reception will be Sunday at 6 30 p m

Society Elections—At the meeting of the American Society for Experimental Pathology on April 21 in Atlantic City, N J the following officers were elected Dr James F Rinehart San Francisco president F S Robscheit-Robbins Ph D Rochester N Y, vice president Dr Sidney C Madden, Upton N Y secretary-treasurer and Drs D Murray Angevine, Madison Wis and Russell L Holman New Orleans, councilors ——Dr Roland E McSweeney Brattleboro Vt was elected president of the Council of New England State Medical Societies at the organizations annual meeting April 19 in Boston Dr Joseph H Howard Bridgeport Conn, was elected vice president of the council and Dr Creighton Barker New Haven Conn secretary Dr Barker is executive secretary of the Connecticut State Medical Society and Dr Howard is a delegate to the American Medical Association and past president of the state medical society

International Conference on Gerontology—The first International Conference of Gerontological Societies will be held in Liege Belgium July 9-12 It is sponsored by the Belgian Gerontological Group, of which Dr L Brull Hospital Baviere Liege Belgium is president The committee representing the American Gerontological Society consists of Dr Anton J Carlson Chicago Edward V Cowdry Ph D (chairman) Dr Robert A Moore and Albert I Lansing Ph D of St Louis and Nathan W Shock Ph D Bethesda, Md All gerontologic and geriatric societies throughout the world and representatives of other organizations engaged in gerontological research are invited to send official representatives and to present papers In addition to the presentation and discussion of the results of gerontologic research it is the purpose of this international conference to establish an International Union of Gerontologic Societies and to promote the financing of research in this subject throughout the world For information write to Dr Brull or to Dr Edward V Cowdry, Washington University School of Medicine St. Louis 10 Mo

American Urological Association—The annual meeting of this association will be held at the Hotel Statler Washington D C May 29 to June 1 under the presidency of Dr Carl Rusche Hollywood Calif Those presenting papers by invitation include

Henry Mortensen Melbourne Australia Osteitis Pubi
William H Boyce, Charlottesville Va First Prize Essay Winner Absorption of Certain Constituents of Urine from the Large Bowel of the Experimental Animal (Dog)
Roger C Baker Jr Chicago Third Prize Essay Winner A Clinical and Experimental Investigation of Serum Albumin in Uremia
Don C Van Cappellan Amsterdam Netherlands Modern Treatment of *Tuberculosis of Urinary Tract.*
Robert F Cebres Sacramento Calif Second Prize Essay New Chemical Approach to the Dissolution of Urinary Calculi
Lieut. William W Miller Jr Pensacola Fla The End to Side Elliptic Connection Technic in Pyeloplasties
Emile S Sayegh Tanta Egypt Plastic Operation on the Ureter

Carl R Moore Ph D Chicago as recipient of the 1950 Award for Research on the Male Reproductive Tract will address the association Monday on 'Experimental Studies on the Male Reproductive System The Ramon Guiteras Lecture will be presented Wednesday afternoon by Dr Robert A Moore dean and Edward Mallinckrodt professor of pathology Washington University School of Medicine St Louis on Tumors of the Testis Motion picture programs will be presented and scientific and technical exhibits will be shown

Aero Medical Association—This association will hold its annual meeting at the Palmer House Chicago May 28 31 under the presidency of Capt Wilbur E Kellum, (MC USN) Pensacola Fla In addition to military personnel the program lists the following speakers

Herman A Heise Milwaukee Airplane Study Concerning the Distribution of Pollens and Molds in the Upper Atmosphere
F Dixson M S and James I Patterson Jr Atlanta Ga Concept of Apparent Physiologic Force
Maurice N Walsh Rochester Minn Flying Safety from the Standpoint of a Flying Doctor
Mr George E Hobbs Mr D A J Morey Mr E R Schneck and Mr W H Beattie London Canada Evidence of Accident Proneness in Pilots with Noncombat Fatal Accident.
Seymour N Stein Ralph R Sonnenschein and Mr I Dell Chicago Artificial Respiration at High Pressures
Murry L. Barr and Mr James Murray London Canada Effect of Altitude Anoxia on the Central Nervous System
Messrs. M S Comess and R E Wilhelm and John P Marbarger Ph D Chicago Performance Under Acute Anoxic Stress in Acclimatized Mice
Mr J L Tippin and Dr William A Whitehorn Chicago Role of *Metabolism in the Acclimatization of Albino Rats to Reduced Barometric Pressure*
Heinz Haber Ph D Randolph Field Texas Possible Methods of Producing the Gravity Free State for Medical Research
Andrew C Ivy and Jerry W Wedral, Chicago A Roentgen Study of Bubble Formation in Dogs
Howard B Burchell Erich A Quer and Jan H Tillisch Rochester Minn Possible Relation of Syncope to Valvular Heart Disease
Hedwig S Kuhn Hammond Ind Industrial Eye Problems

A symposium on Cardiology as It Relates to Air Travel will take place Wednesday morning with Drs Gilbert H Marquardt Chicago Hiram E Essex Ph D, Rochester, Minn Simon Rodbard Ph D Chicago and John E Smith Washington D C participating

Marriages

BELLA MAE MUSGROVE, Charlottesville Va to Mr Charles Hathaway of Birmingham Ala March 16

ARTHUR B PETERSEN to Miss Betty Mina Dahlberg both of Portland, Ore March 25

FREDRICK FISCHER Brooklyn to Mrs Beverly Becker of Miami Fla March 31

ROBERT ALAN LEDNER to Miss Lucille Ellen Phillips both of Brooklyn March 10

MAURICE M STEINBERG to DR MURIEL FRANK both of Omaha in March

WILLIAM CALDWELL to Miss Joan Leslie both of Los Angeles March 17

Deaths

Adolf Meyer ⊕ professor emeritus of psychiatry at Johns Hopkins University School of Medicine in Baltimore, died at his home in Baltimore March 17, aged 83, of heart disease Dr Meyer was born in Zurich, Switzerland, in 1866, and received his degree in medicine at the Universitat Zurich Medizinische Fakultat Switzerland, in 1892, in which year he came to the United States He was an honorary fellow and then docent in neurology at the University of Chicago, 1892-1895, pathologist to the Illinois Eastern Hospital for the Insane Kankakee, 1893-1895, pathologist and later director of clinical and laboratory work, Worcester (Mass) Insane Hospital and docent in psychiatary, Clark University, Worcester, Mass, 1895-1902, director of the Pathological (Psychiatric) Institute, New York State Hospitals, 1902-1910, and professor of psychiatry, Cornell University Medical College New York, 1904-1909 He went to Johns Hopkins in 1910 as professor of psychiatry and served as director of the Henry Phipps Psychiatric Clinic, which was built under his supervision 1911-1913, at Johns Hopkins Hospital He retired at his own request in 1941 He had been honorary president of the National Committee for Mental Hygiene, president of the International Committee for Mental Hygiene and honorary vice president of the Conference on Method of Philosophy and the Sciences Dr Meyer was an honorary member of many psychiatric societies and was president of the New York Psychiatric Society 1905-1907, American Neurological Association 1922 American Psychiatric Association 1927 and the American Psychopathological Association 1912 and 1916 In 1941 Dr Meyer was vice president for America of the International League Against Epilepsy, and in 1943 he was chosen honorary president of the American Society for Research in Psychosomatic Problems He was a member of the Association of American Physicians, Academie de Naturforscher zu Halle, American Association of Neuropathologists American Institute of Criminal Law and Criminology, American Association for the Advancement of Science, New York Academy of Sciences Association for Research in Nervous and Mental Diseases American Orthopsychiatric Association, American Psychological Association, American Association of Anatomists, Harvey Society, New England Society of Psychiatry, American Psychosomatic Society, and corresponding member of the Societe de Neurologie, Societe de Psychologie and Societe Medico-psychologique (Paris) and Sociedad Neurologia y Psiquiatria (Buenos Aires) He was a specialist certified by the American Board of Psychiatry and Neurology Dr Meyer received the first annual award under the memorial fund established in honor of the late Dr Thomas W Salmon and delivered the Thomas W Salmon Memorial Lectures for 1931 In May 1933 he delivered the fourteenth Maudsley Lecture of the Royal Medico Psychological Association in London, England, and in the same year was guest lecturer at the Academy of Neurology and Psychiatry, Kharkow, U S S R He held honorary degrees from Glasgow, Clark Yale and Harvard universities The April 1937 issue of the *Archives of Neurology and Psychiatry* was dedicated to Dr Meyer to mark his seventieth birthday and the twenty-fifth anniversary of the founding of the Henry Phipps Psychiatric Clinic He was a member of the editorial board of the *Archives of Neurology and Psychiatry* for many years and in 1941 joined the editorial board of *Sociometry*, a journal of interpersonal relations In October 1938 the new psychiatric clinic building at the State Hospital for Mental Diseases, Howard R I, was dedicated and named in his honor Dr Meyer contributed extensively to the literature on neurology pathology and psychiatry

Augustus Grote Pohlman, Seal Beach, Calif born in Buffalo, Feb 21, 1879, University of Buffalo School of Medicine 1900, at various times on the faculty of Cornell University Medical College in New York, Johns Hopkins University School of Medicine in Baltimore, Indiana University School of Medicine in Indianapolis and St Louis University School of Medicine, dean and professor of anatomy at the South Dakota University School of Medicine, Vermillion, 1932-1933, professor of anatomy at Creighton University School of Medicine in Omaha from 1933 to 1938, formerly associate clinical professor of surgery (otology, rhinology and laryngology) at the University of Southern California School of Medicine in Los Angeles, member of the American Association of Anatomists died in Hermosa Beach March 31, aged 71 of cardiac failure

William Dean Collier ⊕ Youngstown, Ohio, born in Trenton Mo, Jan 15, 1897, Johns Hopkins University School of Medicine, Baltimore, 1924, formerly professor and director of the department of pathology at St Louis University School of Medicine, specialist certified by the American Board of Pathology, member of the American Association of Pathologists and Bacteriologists and the American Society of Clinical Pathologists, fellow of the American Association for the Advancement of Science, at one time affiliated with St Mary's Group of Hospitals, St John's, Alexian Brothers and St Anthony's hospitals, all in St Louis, since 1936 affiliated with St Elizabeth's Hospital, where he died March 15, aged 53, of cerebral thrombosis, arteriosclerosis and hypertension

James Robert Bost ⊕ Houston, Texas, born in Newton, N C, Aug 18, 1882, University of Louisville (Ky) Medical Department, 1911, clinical professor of orthopedic surgery at the Baylor University College of Medicine, member of the Clinical Orthopaedic Society and the American Academy of Orthopaedic Surgeons, fellow of the American College of Surgeons, served during World War I, chief, orthopedic service, Jefferson Davis Hospital, attending orthopedic surgeon, Memorial Hospital, visiting orthopedic surgeon, St Joseph's Infirmary and Hermann Hospital, consulting orthopedic surgeon, Methodist Hospital, died in Worrall Hospital, Rochester, Minn, March 16, aged 67, of coronary sclerosis

Dallas Hilliard Adams, Milton, Fla, Atlanta School of Medicine, 1908, died March 15, aged 67, of injuries received when struck by an automobile

William Allen Ashbrook, Gage, Ky, University of Louisville (Ky) Medical Department, 1904, member of the American Medical Association, died March 4, aged 71, of cerebral hemorrhage and pneumonia

James Monroe Bamber ⊕ New Orleans, Memphis (Tenn) Hospital Medical College, 1908, fellow of the American College of Physicians, member of the American Heart Association, served in the U S Public Health Service, formerly on the faculty of Tulane University of Louisiana School of Medicine, for many years affiliated with Touro Infirmary, on the staffs of the U S Marine and Charity hospitals, died March 14, aged 75, of hypertension and coronary sclerosis

Paul John Bauerberg, Yonkers, N Y, New York University Medical College, New York, 1898, affiliated with Yonkers Professional and St Joseph's hospitals, a member of the staff and past president of the medical board of Yonkers General Hospital died March 11, aged 78, of acute coronary occlusion

Milton Cain, McLouth, Kan, University Medical College of Kansas City, 1895, died March 20, aged 83, of carcinoma of the liver

James L Cantwell, Bucklin, Mo, St Louis College of Physicians and Surgeons, 1889, member of the American Medical Association, also a dentist, died March 9, aged 88, of diabetes mellitus

George Andrew Cathey, Portland, Ore, University of Oregon Medical School, Portland, 1909, also a graduate in pharmacy, member of the American Medical Association, served during World War I, affiliated with Good Samaritan Hospital, died March 14, aged 67, of cerebral embolism

Harrie H Chamberlin ⊕ Glendora, Calif, University of Southern California College of Medicine, Los Angeles, 1906, served during World War I, member of the staff of the Pomona Valley Hospital in Pomona, where he died March 10, aged 67, of coronary thrombosis

Frank Fenton Clair, Los Angeles, University of Southern California College of Medicine, Los Angeles, 1905, died in the Hospital of the Good Samaritan recently, aged 67, of acute cardiac failure after an operation for perforated duodenal ulcer

George R Dean, McPherson, Kan, American Medical College, St Louis, 1894, member of the American Medical Association, served as member of the state board of registration and examination, county health officer, on the staff of McPherson County Hospital died in Wesley Hospital, Wichita, February 28, aged 78, of cerebral hemorrhage

Martin Henry Deffenbaugh, Detroit, Lincoln Medical College of Cotner University, 1904, served in France during World War I, died in Research Hospital, Kansas City, Mo, March 9, aged 71, of coronary thrombosis and chronic nephritis

Pierre James Fisher ⊕ Marion Ind, Northwestern University Medical School, Chicago, 1931, president of the Grant County Medical Society, served during World War I, formerly affiliated with the Veterans Administration Hospital, on the staff of Marion General Hospital, died March 10, aged 54, of carcinoma of the liver and stomach

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⊕ Indicates Fellow of the American Medical Association

Foreign Letters

PARIS

(From a Regular Correspondent)

March 15, 1950

International Conference on Streptomycin Therapy

The International Fund for Help to Children, which in 1949, in collaboration with the World Health Organization, organized in numerous countries a series of streptomycin treatments for tuberculous children, instituted a conference to compare results with those of countries in which this antibiotic has been in use for several years This meeting was held Feb 9-12, 1950 at the Hopital des Enfants Malades Paris, under the presidency of Prof R Debre Representatives of ten nations attended

Professor Choremis (Athens) reported the isolation of Koch's bacillus in the cerebrospinal fluid in cases in which there was no consecutive meningitis Objective neurologic signs in young children were noted in 20 per cent of cases, fever, vomiting and headache were the main early signs of tuberculous meningitis Professor Mozziconacci (Paris) reported the appearance of prodromal symptoms in 60 per cent of the patients in 4 cases he was able to isolate the bacillus from the cerebrospinal fluid before meningitis developed Professor R Cruikshank (Great Britain) emphasized the necessity of bacteriologic diagnosis and recommended the inoculation of the cerebrospinal fluid in Loevenstein's culture medium Testing of the sensitivity of the strain to streptomycin is essential A Ylppo (Finland) and Professor Choremis (Greece) H Brissaud and S Kaplan (Paris) made a study during the course of treatment of the cerebrospinal fluid which initially shows important fluctuations Several pediatrists have pointed out that a rate of cellular elements under 10 per cubic millimeter and a sugar content under 45 mg per hundred cubic centimeters were of more importance than a normal albumin rate

Professors R Debre (Paris) Dubois (Bruxelles) and Cocci (Florence) have obtained excellent results in meningitis with continuous and prolonged intramuscular and intraspinal treatment lasting six months or more

Honor Smith (Oxford) stressed the advantage of neurosurgical treatment of tuberculous meningitis

Monbrun (Paris), on the basis of observations in more than 1 000 cases of meningitis and miliary tuberculosis, pointed out that choroidal tubercles have been found in 87 per cent of the cases of miliary tuberculosis with meningitis in 51 per cent of cases of miliary tuberculosis alone and in 17 per cent of the cases of meningitis alone Professors Fanconi (Zurich) and D E Elephterion (Greece) studied the pathologic anatomy of tuberculous meningitis the latter reported hemorrhages of the dura mater and hepatitis (perhaps epidemic) Professor Chaptal (Montpellier) presented some electroencephalograms showing signs of encephalitis in some cases and stressed the importance of these examinations In her report on the combined therapies, Edith Lincoln (New York) discussed the results in meningitis and miliary tuberculosis she obtained with streptomycin and promizole® (4,2′-diaminophenyl-5′-thiazolylsulfone) Professor Cocchi administered the sulfone intravenously and large doses of vitamins A and D A large number of authors used para-aminosalicylic acid with streptomycin Other communications were presented by Professors E Bernard (Paris), Bernheim (Lyons), Lorenz and Ruzicka (Australia), Drs Houstek (Czechoslovakia), Todorovic (Yugoslavia), O Waszhocket (Finland) and Daniels (London) Patients in Professor Debre's service at the Brevannes asylum were presented A lunch was offered by Dr L Leclainche, general director of the Poor Law Administration

Studies on Exchange Transfusion

R Moreau treated 3 patients with postabortal anuric nephritis with exchange transfusion with recovery in 2 He advises exchange transfusions every second or third day at a rate of 5 to 7 liters He advocates cautious rehydration, a 1 000 calory diet and no chlorides during the anuric period He noted that the intravenous injection of procaine hydrochloride had no effect on the diuresis The death of the third patient, occurring in the course of the eighth exchange transfusion, when the urea blood rate had already fallen and the diuresis had been resumed may be explained according to the author, by transfusional shock In the discussion of this report to the National Academy of Medicine, Professor Lemiere and M Chevassu confirmed the value of the exchange transfusion method for anuria, the prognosis for which has become hopeful The value of this method has also been demonstrated by Professor Pasteur-Valery-Radot and Milliez and their associates in acute anuric nephritis

Professor Lian, F Sigier and their co-workers obtained spectacular results with this treatment in 2 women with postabortal septicemia with Bacillus perfringens and believe that exchange transfusion is to be preferred to the peritoneal irrigation for infectious anurias

Coumel, Molinier and Turkel studied the ureic curve in the course of transfusional injection in a case of leptospirosis coinciding with a mixed vaccination and noted that the urea rate did not fall progressively, during injection of the first 3 liters it remained at about 5 Gm, fell to 2 30 Gm from the third to the sixth liter and rose again to 4 16 Gm from the seventh to the eighth liter The authors also noted that the rising rates of the citrate (injected with the blood) and of the calcium are parallel and rapid until 2 liters have been injected They diminish slightly during injection of the following 2 liters and then rise again rapidly and become stabilized The exchange transfusion appears to have no effect on the appearance of antibodies The serologic diagnosis of the blood sample taken the eleventh day was positive for leptospirosis and typhoid and paratyphoid vaccinal agglutinins

F Siguier R Fasquelle and their associates in a study of staphylococcic septicemia tried unsuccessfully to sensitize the organism to antitoxin through exchange transfusion

Registering the Currents of Action on an Embryo's Heart

At the same meeting of this society J B Milovanovich, A Delaunay and H Kaufmann set forth their researches on the fragment of the heart of the 9 day old chick embryo, which, placed in a culture medium consisting of plasma and guinea pig's embryonic juice, beats regularly They registered the currents of action with an apparatus comprising a cathodic tube provided with an amplification device of a sensitivity of 4 cm per 30 microvolts, two electrodes are placed on either part of the fragment The authors obtained a curve showing the existence of a rapid (4/100 of a second) R wave of 3 microvolts and of a slow and ample diphasic T wave The authors emphasized that this study proves that the depolarization wave has the same rapidity as that in adult myocardium, whereas the repolarization wave on the cardiac embryonic tissues is slow

Exchange Transfusions and Toxicosis

S Boruchin (Paris) in a paper on toxicosis, published in *Medecine Infantile* (organ of the National Center for Infancy) studied the biologic condition of the newborn child deprived of its mother's milk and exposed to the danger of toxicosis Taking as a basis his observations, made 17 years ago, on the beneficial effect of transfusions of the mother's blood and the role of blood transfusions in the treatment of toxicosis, the author proposes to use exchange transfusion for this disease The author expects that this new method may help control metabolic disorders On the other hand exchange transfusion by the crossed method may furnish maternal protective substances and eliminate presumed toxins On account of the present ignorance of the *primum movens* of this disease it will be necessary to begin with simple exchange transfusion using the mother s blood whenever possible The author stresses the scientific interest of these trials which would permit the research worker to study all the blood of the newborn child in a state of toxicosis Two points are important (1) the necessity of acting quickly to prevent irreversible hepatosteatosis and (2) strict selection of the donor s blood including the mother s with careful checking of the history for malaria which can provoke hemolysis in the newborn

Second International Congress on Asthma

This congress will take place at Mont Dore June 3-5, 1950 under the presidency of Prof Pasteur Valery Radot Information pertaining to medicine may be obtained from Dr J Galup, Medical Secretary 59 rue Bonaparte, Paris (6°) All other information may be obtained from M Lorin Administrative Secretary, 72 Faubourg St Honore Paris (8°)

NORWAY

(From a Regular Correspondent)

Oslo, April 7 1950

Mass Vaccination with BCG

The carefully controlled BCG vaccinations carried out by Aronson and others have been made possible by the use of relatively small numbers of vaccinated persons When there are millions of vaccinations it is difficult to keep track of them Dr T Gedde-Dahl, secretary general of the Norwegian National Association Against Tuberculosis, has suggested that it will take some time to correlate a decline in the tuberculosis death rate with BCG vaccination It will take less time to correlate a declining tuberculosis morbidity with this vaccination Norway is now the only Scandinavian country in which erythema nodosum and pleurisy have been compulsorily notifiable for several years, and these notifications may provide a clue to the effects of BCG vaccination

Incidence of Erythema Nodosum and Pleurisy

	Erythema Nodosum	Pleurisy
1941	1,374	2,089
1942	1,416	2,687
1943	[illegible]	2,903
1944	1,192	2,203
1945	[illegible]	2,105
1946	[illegible]	1,991
1947	859	1,705
1948	634	1,247

The decline was most evident in the last two years and these are the years in which mass vaccination with BCG has been carried out for the first time. In 1947 in Norway some 35,000 persons were vaccinated with BCG and in 1948 about 135,000 Of course several factors other than BCG vaccination have been operative in the period under review The general standard of living has risen since the war, and mass roentgenography followed by appropriate action has made antituberculosis work more effective than ever In the period 1943 1948 more than a million Norwegians over the age of 14 were examined roentgenographically To learn whether the decline in the notifications shown in the table is due to a decline in the number of primary infections following a reduction of the infection risk or to resistance to infection effected by BCG Dr Gedde-Dahl suggests every new notification of tuberculosis should be accompanied with a statement to the effect that the person concerned has or has not been vaccinated with BCG

Venereal Disease Among Norwegian Troops in Germany

When Norway undertook to send a contingent of troops to the British zone in Germany in 1947 there was much anxiety over the outcome, moral and physical, for the occupation forces The Norwegian lay press discussed with considerable heat the pros and cons of instructing the young Norwegian soldier in methods for the prevention of venereal disease Behind this discussion there was little reliable knowledge of the facts Now more is known thanks to a study by Dr Tore Berdal of the Norwegian Army Medical Service About 22 000 Norwegians served in the army of occupation between February 1947 and August 1949 when five brigades were stationed in rotation in Germany The 202 cases of primary syphilis observed throughout this period were unevenly distributed, the syphilis rate being highest in the first brigade, which in six months had 61 cases (14 per thousand) The rate for the Norwegian army serving at home in the same period was only 2 per thousand The last of the five brigades which served in 1949 in Germany had a syphilis rate of only 4 1 per thousand (18 cases), whereas in the same period not a single case of syphilis was observed in the Norwegian army at home There were as many as 40 cases of latent syphilis discovered by the routine serologic control of the troops on their return to Norway The observation that 20 per cent of the cases of syphilis were latent tallies with the opinion of Moore of Baltimore that every fifth syphilitic male presents no clinical manifestations of early syphilis

In the same period there were 646 cases of gonorrhea, and here too the sickness rate was highest in the first brigade (35 per thousand) and lowest in the last brigade (20 5 per thousand) The gonorrhea rate in this last brigade was 13 times higher than in the Norwegian troops stationed at home Dr Berdal finds that the high venereal disease rate among the Norwegian troops in Germany must be traced to (1) the great frequency of these diseases both during and after the war in Germany (2) the great extent to which the Norwegians fraternized with German women about 42 per cent of the 2,700 Norwegians in the last brigade having indulged in sexual intercourse during their service in Germany (3) the extensive neglect of condoms which were used by only about 30 per cent (4) the abuse of alcohol and (5) the stationing of the Norwegians on the fringe of German towns where the Norwegians had easy access to women The decline in the sickness rate in the period under review may largely be traced to educational propaganda

Cancer of Respiratory Tract

In a communication to the Norwegian Surgical Association subsequently published in the *Journal of the Norwegian Medical Association* Dr V H. Springett drew attention to some curious features of cancer of the respiratory tract as observed in Norway and as compared with the incidence of the same disease in England and Wales In 1946 in Norway the mortality from cancer of the larynx was only one quarter that in England and Wales This geographic difference was still greater with regard to the deaths from cancer of the lungs the mortality being five times higher in England and Wales than in Norway In this country the mortality from cancer of the larynx is twice as great in men as in women whereas in England and Wales the ratio of men to women is 4 1

In both countries there has been little change during the last 25 years in the ratio of the deaths from cancer of the larynx to the deaths from all forms of cancer But in both countries and in both sexes there has been a rise in the mortality from cancer of the lungs which in the case of women in England and Wales rose from about 1 per cent to fully 3 per cent of all the cancer deaths during the last 25 years Between the periods 1911-1920 and 1935-1939, the mortality from cancer of the lungs in England and Wales has increased ninefold for men but only fourfold for women

Dr. Springett finds that the low mortality from cancer of the larynx and lungs in Norway, as compared with that in England and Wales, cannot be explained by a reference to differences in the registration and classification of these diseases in the two countries. There must be other operative factors but he does not venture to guess what they are, and he contents himself with stressing the surprising observation that, while the relative mortality from cancer of the larynx has shown no great change in either Norway or England during the last 25 years, the relative mortality from cancer of the lungs has shown a decided rise in the same period in both countries—a nearly tenfold rise in the case of men in England and Wales.

ITALY

(From a Regular Correspondent)

Florence, March 30, 1950.

Congress of Phthisiology

The ninth National Congress of the Italian Society of Phthisiology held at Montecatini was attended by more than 700 physicians. The inaugural session was presided over by Prof. Mario Cotellessa, High Commissioner of Hygiene and Public Health Service. Prof. Gennaro Costantini, president of the Italian Federation Against Tuberculosis, commemorated Edoardo Maragliano with a pupil's affection and admiration on the first centenary of his birth. He stressed his scientific activity and his doctrine on antituberculous immunity.

Professor Giovanardi, director of the Institute of Hygiene at the University of Milan, spoke on antituberculous vaccination and on the recent advances in the field of tuberculosis epidemiology. In countries where the tuberculosis mortality is decreasing, an important decrease in the tuberculization of the population has been observed, with shifting of the primary infection from infancy to adolescence or adulthood. The speaker discussed various vaccines recommended for the prophylaxis of tuberculosis (Maragliano's vaccine, BCG, Petragnani anatuberculine). He predicted that the health authorities would focus their attention on prophylaxis of tuberculosis by immunization and soon antituberculous vaccination would be adopted in Italy. A lively discussion followed Dr. Giovanardi's report. Among those who joined in the discussion, Professor Salvioli pointed out the inconveniences caused by the use of BCG, while Professor Monaldi reported the excellent results observed during a recent trip to the Scandinavian countries, where this method of prophylaxis is in use. Professor Mazzetti emphasized that vaccines prepared from killed bacilli have a similar action to that of BCG, without its inconveniences.

The contribution of pathologic anatomy to the progress of surgical therapy and chemotherapy of tuberculosis was discussed by Prof. Carlo Pana of the Forlanini Institute in Rome. He stated that the use of antibiotics is adding new problems to thoracic surgery and that exactly how much has been achieved by surgical therapy alone and what results can be expected from treatment with antibiotics should be determined. Speaking of extrapleural pneumothorax, he discussed the technical skill and the methods of approach that the surgeon must follow to obtain a pneumothorax similar to intrapleural pneumothorax. With respect to thoracoplasty, he subdivided the cases he studied post mortem, according to the methods of surgery adopted: Proust-Maurer, Semb and Morelli's apicoaxillary "covering" technic.

With respect to antibiotic therapy, phenomena of circumscription of the tubercles were observed in the miliary elements due to an increase of the organic defenses, a phenomenon of regression and involution of the tubercles themselves caused by the attack of the antibiotic on the germs and their partigens, leading to the formation of purely lymphoid tubercles or of stellate cicatrization. In chronic miliary conglomerates streptomycin provides a more rapid and complete cure than that which may occur spontaneously in favorable instances. The pronounced exudative processes are favorably modified by the regression of the perifocal reactions. The caseous nodular lesions are little altered by streptomycin, except the postoperative nodules in which the antibiotic is of noticeable efficacy. Streptomycin may exert a beneficial action even on a cavity, especially if it is a recent one. With the use of paraaminosalicylic acid modifications in the cavitary and bronchial secretions and fibrinous transformations of the exudate in some pulmonary areas may be observed.

Professor Omodei-Zorini spoke of the therapeutic use of streptomycin in human tuberculosis of the respiratory tract. Basing his conclusions on observations of 865 patients, the speaker said that the dose to be used in general is 0.01 to 0.02 Gm. per kilogram of body weight in adults and 0.03 to 0.04 Gm. in children. The intramuscular administration always represents the fundamental treatment. He concluded that in tuberculosis of children the use of streptomycin is imperative in infants and in the forms involving lungs and lymph nodes with a progressive course in early childhood. In the acute miliary form it is absolutely indicated; it is often necessary to combine it with collapse therapy as a second stage procedure. In chronic miliary tuberculosis good results may be obtained by the administration of antibiotics. In the pulmonary form in its initial stage the administration of antibiotic is indicated as a single procedure, while in the ulcerative form it is preferable to combine its use with pneumothorax. In acute extensive bronchopneumonitis, streptomycin is indispensable, the results often being excellent. In caseous lobar pneumonia the results are limited. In surgical treatment of the thorax, streptomycin must be used systematically in all the cases of extrapleural pneumothorax and excision of the lung. In large pulmonary cavities or in cavities with considerable secretion a mixed biologic-mechanical treatment with "retracted lobe according to Omedei-Zorini and Bottari's technic is indicated.

Professor Cattaneo discussed the inhibitory action of streptomycin and its importance in treatment of tuberculosis. Professor Daddi dealt with aspects of the action of streptomycin on Koch's bacilli and the tuberculous organisms. Professor Sanguigno spoke of antibiotics in the treatment of tuberculosis of meninges, pleura and peritoneum. Professor Battigelli reported the results of two years of streptomycin therapy in hospitals of the city of Trieste.

SWITZERLAND

(From a Regular Correspondent)

Geneva, April 6, 1950.

International Meeting of the Medical and Surgical Film Institute

In collaboration with the Swiss medical journal *Medecine et Hygiene,* the International Medical and Surgical Film Institute in Paris (President, Eric Duvivier) was organized in Geneva (Aula of the University and "Palais des Nations"), and a meeting held March 30 to April 1, 1950 under the chairmanship of Prof. A. Jentzer, chief of the Surgical clinic of the Geneva University. It was attended by more than 600 physicians, surgeons and students, who saw more than 105 films from 10 countries of Europe and America. The United States had sent some of their best films on their experiments in physiology and on the latest surgical treatment of congenital cardiovascular diseases.

The United Kingdom, Spain, The Netherlands, Uruguay, Germany, Italy and Switzerland also sent excellent films concerning modern surgery and medicine. The USSR sent a film from Professor Youdine (Moscow) on an artificial esophagus. Another Russian film showed the reanimation of the organism, especially of dogs' heads which had been cut previously and presumably were lifeless, the pupil reflex being completely abolished. After the dead head had been placed in a blood circuit the pupil was revived and the ears pricked up at the noise made by a hammer on the table on which it rested.

The jury composed of the spectators and presided over by Professor Portmann, dean of the Medical Faculty of Bordeaux (France), gave the Great International Prize for Scientific Films to the film of Professor Santy (Lyons, France) on the new operation of anastomosis between the portal and renal veins, indicated now as the treatment for cirrhosis.

The Great International Pedagogic Prize was given to Professor De Vernejoul (Marseilles, France) who described the latest technics of gastrectomy in his film.

The Great International Prize for Scientific Research was given to the film of Professor Amsler (Zurich, Switzerland) on the elements of the liquid of the anterior chamber of the eye.

The meeting was so successful that it was decided to create in Geneva a Delegation of the International Center of Medical and Surgical Films ("Art et Science," 3, rue de Siam, Paris). It will be presided over by Professor Jentzer, the secretaryship will have permanent headquarters in the offices *Medecine et Hygiene*, 15 Boulevard des Philosophes, Geneva, Switzerland, a *Kinemathek* will be prepared for the use of medical faculties and of physicians or surgeons. The delegation will also organize annual meetings at which the latest and best films will be presented to the Swiss medical profession in different towns of Switzerland.

BRAZIL

(From a Regular Correspondent)

São Paulo, April 10, 1950.

Maternal Mortality

In a recent paper, Drs. J. Onofre Araujo and B. Neme reported on a study of 79 deaths among 7,686 patients admitted to the obstetrical clinic of the Medical School of São Paulo under the supervision of Prof. Raul Briquet. The authors tried to ascertain the cause. They observed that medical assistance or lack of it before admission and to the condition of the patients on admission to the emergency ward were important factors. The obstetrical clinic of the university is the only maternity hospital in São Paulo receiving patients with puerperal infection. They classified the deaths into three groups.

1. Those related directly to pregnancy (43 cases) which were subdivided into (*a*) puerperal infection (4.46 per cent and 21.5 of the total deaths), (*b*) eclampsia (1.47 and 18.92 per cent of the deaths) and (*c*) hemorrhage (1.21 and 13.92 per cent of the deaths).

Drs. Araujo and Neme emphasized that puerperal infection still heads the list of this group because peritonitis after intentional abortion was the principal factor in the deaths in this group (10 cases in 17). Excluding the deaths from peritonitis following intentional abortion, the causes of death in this group appeared in the following order: toxemia, hemorrhage, heart disease and infection.

2. Those derived from diseases that could be aggravated by pregnancy (20 cases): (*a*) heart disease (3.7 and 12.65 per cent of the deaths), (*b*) embolic process (6.33 per cent) and tuberculosis (also 6.33 per cent).

3. Deaths independent of the pregnant state (16 cases): pernicious anemia, acute glomerulonephritis, intestinal obstruction, chronic glomerulonephritis, cortical renal necrosis, meningitis, cerebral abscess, syphilitic aorta, acute hepatic necrosis and megaloesophagus. The cause in 2 cases was not determined.

After considering the condition of the patients on admission and analyzing the autopsies, which were performed in 80 per cent of the cases, Drs. Araujo and Neme concluded that 56.8 per cent of the deaths could have been prevented if the patients had received medical assistance sooner or had had adequate prenatal care. They asserted that the deaths were due to insufficient public education with respect to sanitation, lack of prenatal care, inadequate home assistance and the small number of beds for obstetric cases in hospitals, even in large centers.

Peritoneal Use of Sulfonamides

Dr. Mario Montenegro studied the topical application of sulfonamides, especially their intraperitoneal use. He called this method inefficient and harmful to the peritoneum and intraperitoneal organs. According to him, the peritoneal use of sulfonamides should be discontinued. A summary of 172 cases of acute and subacute appendicitis complicated with peritonitis operated on in the service of Prof. B. Montenegro, was presented by Dr. Montenegro. The results were satisfactory, although the sulfonamides were never used intraperitoneally.

COLOMBIA

(From a Regular Correspondent)

Bogota, April 5, 1950.

American Medical Mission

An American medical mission which was sent by the Unitarian Service Committee was in Colombia during October and November 1949. The president and vice president of the mission were Drs. George H. Humphreys II and McKeen Cattell, respectively, the other members were Drs. Rafael Dominguez P., Charney Landis, Salvatore P. Lucia, Donovan J. McCune and Perry P. Volpitto. Mr. Jose Maria Chaves was the coordinator and Mrs. Marie Danielson the secretary. The mission visited Bogota, Medellin, Barranquilla and Cartagena. Their work included lectures, seminar courses, surgical operations, visits to hospitals, clinics and medical centers and medical reunions. They examined the facilities and medical equipment of Colombia and showed the modern technic for using the equipment and how to repair or manufacture some parts of equipment. They visited the medical schools of the universities and made suggestions to improve facilities at little cost. One of the most important tasks of the mission was the organization of academic standards and of teaching methods in the universities of Colombia. In the course of the meetings with the Councils of Directors of the Universities of Bogota, Medellin and Cartagena the relative methods of organization and teaching methods in either American or Colombian medical schools were discussed. The suggestions made by the members of the mission are to be accepted in the programs of the schools of medicine of Colombia. They included a greater emphasis on preclinical studies, diminution of the number of students admitted to medical schools, increase of the number of full time teachers and close supervision of the clinical work of the students. The report of the members of the mission consists of 78 pages.

Distinguished Visitors

During February and March 1950, the following visitors lectured before the faculties of medicine of Colombia. Dr. Herbert Koteen, a professor at Cornell University, New York and a specialist on infectious diseases spoke at the Faculty of Medicine of Bogota on antibiotics and modern therapy of syphilis. Dr. Luis Ignacio Barraquer of Barcelona spoke before the Colombian Society of Ophthalmology and Otorhinolaryngology on the modern technics used for operation on cataract and on keratoplasty. In the hospitals of Bogota he demonstrated certain surgical technics. Dr. Arnaldo Rascovsky of Buenos Aires, a psychoanalyst, lectured at several medical centers, the national library, the Faculty of Medicine of Bogotá and before the Colombian Society of Psychopathology. He spoke on psychoanalysis and psychogenesis of obesity and of epilepsy. He stimulated in the members of the Colombian medical centers an interest in establishing a school of psychoanalysis in Colombia

Correspondence

ANTIHISTAMINICS AND COLDS

To the Editor —In view of the intense interest in the use of antihistaminics for the common cold and because legislation has been proposed in New York State to prevent over the counter sales of these substances, it was thought advisable by the Erie County Medical Society to study this problem As a member of the committee on pharmacy, I was delegated to collect this data A return postal card was sent to each member of the county society One thousand cards were sent out Two hundred and ninety-six physicians reported on the antihistaminics Of this group, 114 physicians found that antihistaminics were effective with respect to the symptoms of the common cold However the percentage of patients who obtained relief varied considerably 59 physicians reported that from 1 to 25 per cent of their patients had benefit in relief of the common cold, 37 found that only 26 to 50 per cent of patients were helped and only 25 reporters showed that more than 50 per cent of their patients received good results Hence, approximately only 10 per cent of the physicians found the antihistaminics to be of benefit to 50 per cent or more of their patients in the relief of symptoms of the common cold However, 223 of the 247 physicians reported the development of the usual side effects of the antihistaminics, such as drowsiness and dizziness

It would appear from this survey that the advertising claims made by the various pharmaceutic houses promoting the over the counter sales of these substances for care of the common cold are greatly exaggerated and the incidence of their side effects greatly minimized It is my belief that these discrepancies should be corrected in advertising claims and, better still, these drugs should be prohibited from over the counter sales without prescription

Carl E Arbesman, M D Chairman,
Committee on Therapy
American Academy of Allergy

DISCARDED DRUG SAMPLES

To the Editor —I was interested in the recent brief article from a Post Office Department employee concerning the discarding in post office waste baskets of drug samples by recipient physicians This article prompts me to write you about another hazard which arises from the mailing of samples of drugs to physicians at their homes

Until recently I lived in Park Merced, a housing project owned by the Metropolitan Life Insurance Company which includes 1 800 apartments and soon will have double that number Numerous samples of drugs were sent to my home by various pharmaceutical houses, most of which went into the garbage can In Park Merced there were (and are) vast numbers of young children, some of whom rummage through waste containers and garbage cans and at least one drug was sampled by a child while I was there

Can the American Medical Association persuade the drug manufacturers not to mail samples to doctors at their home address?

Donald A Carson, M D, San Francisco

ATHEROSCLEROSIS

To the Editor —In a Current Comment, in The Journal, January 28, page 262, mention is made of experiments in which dietary hypercholesteremia in the rabbit resulted consistently in the production of atherosclerosis However, in the alloxan diabetic rabbit this effect was not produced This work was difficult to reconcile with the higher incidence of atherosclerosis which occurs in human diabetes, until the publication of J B Firstbrook (*Science* 111 31 [Jan 13] 1950), which was not included in your comment possibly because it had not yet appeared when your article was being prepared In normal rabbits he has demonstrated the importance of differences in the change of weight during the experiment on the production of atherosclerosis If the food intake of rabbits fed cholesterol was diminished, the incidence of atherosclerosis was also diminished Dr Firstbrook's work makes it appear that the low incidence of experimental atherosclerosis in rabbits rendered diabetic with alloxan before cholesterol administration is probably associated with the characteristic emaciation of these animals rather than a specific effect of the diabetes

David Monk Adams,
Banting and Best Department of Medical
Research University of Toronto Canada

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Chiropractic Institute as Medical School —The defendant chiropractors were charged by indictment with unlawfully using a name, title and descriptive material which indicated and implied that they were carrying on a school of medicine in violation of the Education Law The indictment was dismissed by the court of general sessions so the prosecution appealed to the supreme court, appellate division first department, New York

The defendants are the principal officers and teachers of a school known as "The Chiropractic Institute of New York,' which is concededly unlicensed and has received no charter to carry on a school of medicine Under Education Law, section 6501, subdivision 3 a medical school is defined as "any medical school, college or department of a university, registered by the regents as maintaining a proper medical standard and as legally incorporated The same section subdivision 4, so far as relevant, defines the practice of "medicine" as holding oneself out as being able "to diagnose, treat operate or prescribe for any human disease, pain, injury, deformity or physical condition' and undertaking "by any means or method to diagnose or treat the same

The catalog of the Chiropractic Institute of New York states, "The chiropractor analyzes the mechanical imperfections of the human body, determines where they interfere with nerves and adjusts the body parts back to normal position This adjustment frees the nerves and puts the cells back under control Health is the natural result" After setting forth the names of the faculty and the courses, many of which the evidence indicated were courses usually taught in recognized medical schools the catalog then sets forth the hours and the type of training in various departments of the school, e g, anatomy, neurology chemistry pathology diagnosis, chiropractic and special clinical subjects

It is true, said the supreme court that a number of the subjects mentioned in the catalog as subjects of instruction in the institute are also taught in courses of psychology or biology in colleges and high schools, if that were all the catalog set forth, there would be no adequate proof sufficient to sustain the indictment Similarly, the court continued the mere use of the name "The Chiropractic Institute of New York" on the pamphlet or otherwise would be insufficient But the descriptive material in the catalog read as a whole, as it must be, and considered in all its parts and their relations to each other, together with the claimed admissions of defendants showing the use of the catalog, are sufficient in our opinion to indicate that the school and the defendants held themselves out as teaching the diagnosis and treatment of human diseases with a view to a cure and accordingly conducting a school of medicine It is true, the appellate division continued, that the treatment is not with drugs or medicines as such but through chiropractic methods, that is through what the catalog calls the principles and practice of "chiropractic" or 'the therapeutic science of body mechanics" But the statute forbids the unlicensed practice of medicine 'by any means or method" and the unauthorized conducting of a school of "medicine"

The statute was passed not merely, as defendants contend to prevent any candidate or student from being deceived or defrauded but for the protection of the public in the interest of public health continued the court On adequate factual proof showing that the defendants were actually diagnosing and treating human diseases, the courts have frequently held that unlicensed practitioners of chiropractic are subject to penalties for the illegal practice of medicine In the case before us the first count of the indictment is based not on the mere use of the words "Chiropractic Institute' but on corroborative proof in the Grand Jury minutes, read with the catalog, all of which shows that the school and defendants, as its principal officers and teachers, held themselves out to teach the students attending therein the diagnosis and treatment of human diseases with a view to a cure and accordingly, held themselves out as a school of "medicine" within the meaning of Education Law As the school was concededly unlicensed, sufficient was shown to support the first count of the indictment

Accordingly the order of the trial judge in dismissing the first count of the indictment was reversed and it was found that the defendants were engaged in the unlawful conduct of a medical school—*People v Kightlinger et al 93 N Y S (2d) 636 (1949)*

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners *Parts I and II* Various locations June 19 21 Final date for accepting applications is May 19 *Part III* Twenty nine centers June 6-29 Registration closes on May 6 Exec Sec Mr E S Elwood 225 S 15th Street, Philadelphia

EXAMINING BOARDS IN SPECIALTIES

American Board of Anesthesiology *Written* Various locations July 21 *Oral* Chicago Oct. 8 11 Sec Dr Curtiss B Hickcox 745 Fifth Ave. New York 22

American Board of Internal Medicine *Oral* San Francisco June 21 23 The oral examinations in the subspecialties will be held at the same time and places *Written* Oct 16 Final date for acceptance of applications is May 1 Asst. Sec Dr William A Werrell 1 West Main Street Madison 3 Wis

American Board of Neurological Surgery *Oral* Chicago June 3 Applications no longer accepted Chicago Oct. 1950 Final date for filing applications is April 30 Sec Dr W J German 789 Howard Ave New Haven Conn

American Board of Obstetrics and Gynecology Inc. *Oral Part II* Atlantic City May 21 27 Sec Dr Paul Titus, 1015 Highland Bldg Pittsburgh.

American Board of Ophthalmology *Written* Various Centers January 1951 Final date for filing applications is July 1 1950 *Practical.* Boston May 22 26 Chicago Oct. 2 6 West Coast, Jan. 1951 Sec., Dr Edwin B Dunphy 56 Ivie Road Cape Cottage Maine.

American Board of Otolaryngology *Oral* San Francisco May Chicago October Sec. Dr Dean M Lierle University Hospital Iowa City

Amrican Board of Pediatrics San Francisco, June 30 July 2 Exec. Sec Dr John McK Mitchell, 6 Cushman Road Rosemont Pa.

American Board of Physical Medicine and Rehabilitation *Oral and Written* Boston Aug 26-27 Final date for filing applications is April 1 Sec. Dr Robert L. Bennett, 30 N Michigan Ave. Chicago

Amedican Board of Plastic Surgery *Oral* May June. Sec. Dr Louis T Byars 4647 Pershing Avenue St. Louis Mo.

American Board of Preventive Medicine and Public Health *Written* Portland Ore. May 28 *Oral* Portland Ore. May 29 Sec. Dr E L Stebbins 615 N Wolfe St. Baltimore 5 Md

American Board of Psychiatry and Neurology San Francisco June 23 24 Applications no longer accepted. Next examination December 1950 Final date for filing applications is Sept. 1

American Board of Radiology *Oral* Chicago, week of June 18 Sec Dr B R. Kirklin 102- 10 Second Ave S W., Rochester Minn

American Board of Surgery *Written* Various centers Oct. 25 Final date for filing applications is July 1 Sec. Dr J Stewart Rodman. 225 South 15th Street, Philadelphia.

American Board of Urology Chicago, Feb 10-14, 1951 Final date for filing applications is Sept. 1 1950 Sec Dr Harry Culver 7935 Sunnyside Road Minneapolis 21

BOARDS OF MEDICAL EXAMINERS

Alabama *Examination* Montgomery June 27 29 Sec Dr D G Gill 519 Dexter Avenue Montgomery

Alaska * Juneau Sept 5 Special examinations given on application Sec Dr W M Whitehead Box 140 Juneau

Arkansas * *Examination* Little Rock, June 8 9 Sec. Dr Joe Verser Harrisburg Homeopathic, Little Rock June and November Sec., Dr Carl S Bungart, 105 N 14th St. Fort Smith. *Eclectic.* Little Rock June 8 9 Sec Dr Clarence H Young 1415 Main Street, Little Rock

California *Examination Written* San Francisco June 19 22 Los Angeles Aug 21 24 Sacramento Oct. 16 19 *Examination Oral and Clinical for Foreign Medical School Graduates* San Francisco June 18 Los Angeles Aug 20 San Francisco Nov 12 *Reciprocity Oral Examination* San Francisco June 17 Los Angeles Aug 19 San Francisco Nov 11 Sec Dr Frederick N Scatena 1020 N Street Sacramento 14

Connecticut * *Examination* Hartford July 11 12 Sec to the Board Dr Creighton Barker 160 St. Ronan St. New Haven *Homeopathic* Derby July 11 12. Sec. Dr Donald A Davis 38 Elizabeth St Derby

Delaware *Examination* Dover July 11 13 *Reciprocity* Dover July 20 Sec Dr J S McDaniel 229 S State St Dover

Florida * Jacksonville June 25 27 Sec Dr Frank D Gray 12 N Rosalind Avenue, Orlando.

Georgia *Examination* Atlanta and Augusta June *Endorsement* Atlanta June Sec Mr R C. Coleman 111 State Capitol Atlanta 3

Hawaii *Examination* Honolulu July 10-13 Sec. Dr I. L Tilden 1020 Kapiolani St Honolulu.

Idaho Boise July 10 Sec Mr Armand L. Bird 305 Sun Bldg Boise

Indiana *Examination* Indianapolis June. Sec., Dr Paul R. Tindall. 1138 K. of P Bldg Indianapolis.

Iowa * *Examination* Iowa City June 12 14 Sec Dr M A Royal 506 Fleming Building Des Moines 19

Kansas Kansas City June 7 8 Sec Dr J F Hassig 905 N 7th Street, Kansas City

Kentucky *Examination* Louisville, June 14 16 Sec. Dr Bruce Underwood 620 S 3rd Street Louisville 2.

Louisiana New Orleans June 8-10 Sec Dr Roy B Harrison 1507 Hibernia Bank Bldg New Orleans

Maine *Examination and Reciprocity* Augusta July 11 12 Sec Dr Adam P Leighton 192 State St Portland

Maryland *Examination* Baltimore June 20-23 Sec Dr Lewis P Gundry 1215 Cathedral Street Baltimore 1 *Homeopathic* Baltimore June 20 21 Sec Dr John A Evans 612 W 40th St. Baltimore

Massachusetts *Examination* Boston July 11 14 Sec Dr George L. Schadt Room 37 State House Boston 33

Michigan * *Examination* Ann Arbor and Detroit June 12 14 Sec Dr J Earl McIntyre, 100 W Allegan St. Lansing 8

Mississippi Jackson June 20 21 Asst Sec. Dr R N Whitfield Jackson 113

Missouri Examination St. Louis May 31 June 2 and June 7 9 Exec Sec Mr John A Hailey Box 4 State Capitol Building Jefferson City

Nebraska * Examination Omaha June 5-7 Director Bureau of Examining Boards Mr Oscar F Humble, 1009 State Capitol Building Lincoln 9

New Hampshire Concord Sept 13 Sec Dr John Samuel Wheeler 107 State House Concord

New Jersey *Examination* Trenton, June 20 23 Sec Dr E S Hallinger 28 West State Street Trenton.

New York *Examination* Albany Buffalo New York and Syracuse June 27 30 Sec. Dr Jacob L. Lochner Jr 23 S Pearl St Albany

North Carolina *Written* Raleigh June 19 22 *Endorsement* Raleigh June 19 Sec Dr Ivan Procter 226 Hillsboro Street Raleigh

North Dakota *Examination* Grand Forks July 5 7 *Reciprocity* Grand Forks July 8 Sec Dr C J Glaspel Grafton.

Ohio *Examination* Columbus, June 14 17 Sec. Dr H M Platter 21 W Broad St Columbus 15

Oklahoma * *Examination* Oklahoma City June 7-8 Sec., Dr Clinton Gallaher 813 Braniff Building Oklahoma City

Pennsylvania *Examination* Philadelphia and Pittsburgh July 11 14 Act Sec Mrs Marguerite G Steiner 351 Education Bldg Harrisburg

Puerto Rico *Examination* Santurce Sept. 5 Sec Mr Luis Cueto Coll Box 3717 Santurce.

South Carolina *Examination.* Columbia June 26-29 *Reciprocity* First Monday of each month Sec Dr N B Heyward 1329 Blanding Street Columbia.

South Dakota * Sioux Falls, July 18-19 Sec Dr C E. Sherwood 300 First National Bank Bldg., Sioux Falls

Texas * *Examination* Austin, June 19 21 Sec Dr M H Crabb 1714 Medical Arts Bldg Fort Worth 2

Utah *Examination* Salt Lake City June. Dir Dr Frank E Lees, 324 State Capitol Building Salt Lake City

Vermont *Examination* Burlington June Sec Dr F J Lawliss Richford.

Virginia *Examination* Richmond June 23 24 *Endorsement* Richmond June 22. Sec. Dr K. D Graves 631 First St. S W Roanoke.

West Virginia *Examination* Charleston July 10 12 Sec Dr N H Dyer Capitol Bldg Charleston

Wisconsin * Milwaukee July 11 13 Sec Dr C. A Dawson River Falls.

Wyoming *Examination* Cheyenne June 5 Sec. Dr Franklin D Yoder Capitol Bldg Cheyenne.

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* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Alaska *Examination* Juneau last week in August Sec Dr C Earl Albrecht Box 1931 Juneau.

Arizona *Examination* Tucson June 20 Sec Mr Francis A Roy Science Hall University of Arizona Tucson

Connecticut *Examination* New Haven June 10 Exec. Asst State Board of Healing Arts M G Reynolds 110 Whitney Ave New Haven.

Florida *Examination* Gainesville June 3 Sec. Mr M W Emmel University of Florida Gainesville.

Oregon Portland June 17 Sec. Dr C. D Byrne, University of Oregon Eugene.

South Dakota Vermillion, June 2 3 Sec. Dr Gregg M Evans, 310 E. 15th Street Yankton.

Wisconsin Milwaukee June 3 Madison Sept. 30 Sec Mr W H Barber Scott and Watson Sts Ripon

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below

American J Obstetrics and Gynecology, St Louis

58 1041-1246 (Dec) 1949

Absorption of Radiopaque Substances Used in Hysterosalpingography Comparative Study of *Various Aqueous and Oily* Media W E Brown, A G Jennings and J T Bradbury —p 1041
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Use of Pyridoxine and Suprarenal Cortex Combined in Treatment of Nausea and Vomiting of Pregnancy C W Dorsey —p 1073
Continuous Caudal Analgesia in Obstetrics Experience in 841 Cases in Private Practice A J Kelley —p 1079
*Continuous Spinal Anesthesia in Treatment of Severe Pre Eclampsia and Eclampsia Preliminary Report of Study of 24 Cases P J McElrath, H H Ware Jr , W C Winn and E C Schelin —p 1084
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Uterine Muscle Physiology from Laboratory to Bedside, Treacherous Crossing W Bickers and M Woods —p 1099
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Placenta Accreta Complicated by Hemoperitoneum M DeW Pettit and N Mitchell —p 1201
Vaginal Smear "Precancer" Cell Studies Using Modified Technique J E Ayre —p 1205

Follow-Up of Eclampsia Cases—Bryans and Torpin summarize data on 243 patients with eclampsia, who were followed for an average of more than twelve years There were 565 subsequent pregnancies in 188 women, of which 22 9 per cent resulted in either stillbirth or abortion At least 203 of these pregnancies in 106 women were complicated by toxemia, an incidence of 36 1 per cent Fifty-six and four tenths per cent of the patients have had at least one toxemic pregnancy This is four to six times the general rate of occurrence Eclampsia recurred 27 times One woman had two subsequent attacks The incidence of repeated eclampsia was 4 8 per cent, or from 7 to 32 times greater than the usual rate of occurrence as reported by various authorities Of the 27 women who died during the period of eclampsia, 4 died of eclampsia, 5 of cardiovascular disease and 4 of chronic glomerulonephritis Eclampsia is a specific disease of pregnant women It is not a manifestation of chronic nephritis or of hypertensive cardiovascular disease, although either of these conditions may precede the attack of eclampsia and possibly render the patient more susceptible to toxemia Neither does eclampsia nor nonconvulsive toxemia cause chronic nephritis or hypertensive cardiovascular disease Patients who have once had eclampsia or preeclampsia are more likely to have subsequent toxemia and a high incidence of stillbirths and abortions This is not because of some constitutional weakness or morbid influence, as Young suggested, not because they have essential hypertension, as Dieckmann states, nor is it because the first attack leaves them more susceptible, rather, it is because the same etiologic factors, such as environment and diet are likely to remain more or less constant and to provoke the same results in subsequent pregnancies

Continuous Spinal Anesthesia in Treatment of Eclampsia—McElrath and his associates used a continuous spinal anesthesia in the treatment of eclampsia and preeclampsia of 24 patients Twelve of these had severe preeclampsia and 12 had eclampsia with convulsions The patient with severe toxemia of pregnancy was placed as soon as possible after admission in a quiet, darkened room A continuous spinal anesthesia was started in cases of severe preeclampsia or eclampsia An initial dose of 0 5 cc of 1 5 per cent piperocaine hydrochloride solution (7 5 mg) was injected The blood pressure was recorded after five minutes and again after ten minutes The blood pressure should be obtained every fifteen minutes Subsequent injections were given at fifteen or thirty minute intervals The authors never give more than 1 cc unless the patient is ready for delivery A venipuncture was done and blood drawn for the determination of blood sugar, nonprotein nitrogen, uric acid, carbon dioxide-combining power total and fractional proteins, Rh type and for the cross matching of blood The venipuncture needle was then strapped in place, and the following solutions were administered through this needle 400 cc of a 10 per cent dextrose solution in distilled water, 80 cc of sodium lactate solution and 1 2 mg of digitoxin A similar volume of dextrose was given every four hours until the patient could take the necessary amount by mouth For a patient with anuria or oliguria the volume of intravenous fluids was limited to 250 cc every four hours If the carbon dioxide-combining power was below normal, additional sodium lactate was added to the subsequent solution of dextrose for injection The patient should receive a maintenance dose of digitoxin (0 2 mg) daily Special attention was given to the level of the anesthesia by testing the area of skin anesthesia When the patient was ready for delivery, additional anesthesia was obtained by injecting 2 cc of piperocaine hydrochloride solution, after placing the woman in a sitting position which was maintained for thirty minutes The level of anesthesia was then usually adequate for delivery There were no deaths in these 24 women, and only 4 convulsions occurred after the treatment was introduced No complications incident to the use of spinal anesthesia were encountered in these 24 patients

American Journal of Pathology, Ann Arbor, Mich

26 1-176 (Jan) 1950

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American Journal of Public Health, New York

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Am J Syphilis, Gonorrhea and Ven Dis, St. Louis

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Seropositivity in Patients Previously Treated for Syphilis Differentiation Between Seroresistance and 'Treatment Failure I L Schamberg —p 73

*Fatal Herxheimer Reaction Following Penicillin Therapy Report of Case of Syphilitic Pachyleptomeningitis B Shaffer and H A. Shenkin —p 78

Donovanosis—Granuloma Inguinale Incidence Nomenclature and Diagnosis M Marmell and E Santora —p 83

Fatal Herxheimer Reaction Following Use of Penicillin in Syphilitic Pachyleptomeningitis—Shaffer and Shenkin report a woman aged 34, who presented symptoms of cord tumor and syphilitic meningovascular disease A laminectomy involving the second third, fourth and fifth thoracic vertebrae was performed with the patient under endotracheal ether anesthesia. A thickened dura and a thickened and adherent arachnoid were incised Since these findings substantiated the diagnosis of syphilis rather than tumor, a small excision of the dura arachnoid for biopsy, followed by closure of the wound, completed the operation Treatment with penicillin was begun by administering 1,000 units every three hours A severe febrile reaction with exaggeration of symptoms developed during the treatment, and the woman died ten days later The evidence for a fatal Herxheimer reaction appeared fairly conclusive. It included a sudden rapid, severe febrile response and an exaggeration of the patient's signs and symptoms within a few hours after the institution of the penicillin therapy The postoperative spinal fluid observations and the autopsy demonstrated that the activation of the patient s symptoms was not due to operative intervention or to secondary pyogenic infection The histologic observations were characteristic of syphilis and were compatible with a Herxheimer reaction as being an acute activation of a syphilitic process The extensive destructive changes in the central nervous system resulting from the Herxheimer reaction included focal hemorrhages, focal necroses and an acute inflammatory reaction

Annals of Western Medicine & Surgery, Los Angeles

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*Traumatic Chylothorax with Report of Case. J Goorwitch and A. Ettleson —p 420

Stuck Joint Syndrome in Cervical Spine. T Stonehill.—p 424

Thyroid Feeding Fifty Years Ago and Today E C Hamblen —p 427

Traumatic Chylothorax.—Goorwitch and Ettleson report a patient who had undergone a bilateral Smithwick operation for essential hypertension They emphasize (1) the long interval from the date of left sympathectomy to the date when roentgenologic evidence of chylothorax on the left was first noted, (2) a short-lived but complete disappearance of eosinophils and reduction of lymphocytes in the peripheral blood to 4 per cent and (3) the spontaneous sealing off of the defect in the chyle channel without surgical intervention All these features indicate either slight damage to the thoracic duct or a complete division of a smaller chyle channel After injury to a chyle channel, chyle accumulates in the mediastinum extrapleurally Only after this collection of chyle finds its way into the pleural cavity can chylothorax be diagnosed roentgenologically In this patient this required thirty-four days The patient died sometime later as the result of an acute vascular accident. The authors point out that of the 62 cases of traumatic chylothorax recorded in the literature, only 6 were due to surgical injury Of these 6, 4 were caused by sympathectomies, 1 an intrapleural pneumonolysis and the other a resection of Ewing's tumor of the right tenth rib In a recent article Baldridge and Lewis mentioned several unpublished instances of traumatic chylothorax following esophagectomies and sympathectomies Smithwick states that he had accidentally injured the thoracic duct fifteen to twenty times but that only one of these injuries resulted in chylothorax because the others were recognized and repaired promptly It may be assumed on the basis of such reports that traumatic chylothorax due to surgical accidents is more common in these days of frequent surgical procedures in and near the mediastinum than it would appear from a review of the literature.

Blood, New York

4 1281-1382 (Dec) 1949

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Hypoprothrombinemia Studies of Case of Idiopathic Type and Effect of Serum Administration C L Crockett Jr D Shotton, C G Craddock Jr and B S Leavell —p 1298

Effect of Artificial Surfaces on Blood Coagulability with Special Reference to Polyethylene T J Donovan and B Zimmermann —p 1310

Role of Staphylocoagulase in Blood Coagulation II Coagulation in Absence of Calcium and in Presence of Fluorides Heparin and Azo Dyes J B Miale.—p 1317

Determination of Level of Leukocytes in Blood Stream with Inflammation Thermostable Component Concerned in Mechanism of Leukocytosis V Menkin —p 1323

Experimental Thoracic Duct Fistula Observations on Lymphocyte Output W W L Glenn F X Bauer and S L Cresson —p 1338

Effects of Roentgen Rays on Inflammatory Cells of Mouse and Rabbit. W A Townsend and B Campbell —p 1346

Preliminary Study of Relationship Between Lactobacillus Lactus Dorner Response and Clinical Anti Pernicious Anemia Activity of Liver Extracts W F White J R Mote and E E Hays —p 1357

Pernicious Anemia in Childhood Report of Case in Six Year Old Girl Responding to Refined Liver Extract Folic Acid and Vitamin B_{12} in Successive Relapses R W Davis R. M Christian D M. Ervin and L E Young —p 1361

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Influence of Degree of Caloric Restriction on Formation of Skin Tumors and Hepatomas in Mice A Tannenbaum and H Silverstone —p 724

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Action of Oxazine Dyes on Tumors in Mice. M R Lewis P P Goland and H A Sloviter —p 736

Stimulating Effect of Dietary Fat on Carcinogenesis R K. Boutwell M K Brush and H P Rusch —p 741

Influence of Vitamins of B Complex on Induction of Epithelial Tumors in Mice R K Boutwell M K Brush and H P Rusch.—p 747

Binding of Phenolsulfonephthalein by Serum and by Albumin Isolated from Serum in Cancer C Huggins E V Jensen M A Player and V D Hospelhorn —p 753

Tissue Transplant in Testing Materials for Carcinogenic Action.—According to Smith recent experimentation has demonstrated that carcinomas and benign and malignant papillomas develop from epithelial tissues transplanted from mouse embryos into adult animals along with methylcholanthrene dissolved in olive oil The original experiments were undertaken to determine whether the epithelial tissues of embryos possess the potentiality to become cancerous or whether this potentiality is acquired later in life. When the fact emerged that epithelial tumors appear quickly and regularly from tissue transplants, the question arose whether this method could be employed as a means of testing chemical compounds for carcinogenic action on selected tissues The experiments here reported were designed to provide information on this point by tests with several carcinogens in addition to methylcholanthrene The tissues are taken from the mouse embryos, removed near term under aseptic precautions and killed by cutting off their heads The desired embryo tissue or organ is minced in Locke's solution, and for each implantation 0 05 cc of this tissue suspension is drawn into a syringe, then 0 05 cc of the carcinogen solution is drawn up into the same syringe and injected into the posterior thigh muscles of adult mice through skin incisions made over the calf muscle The skin incision must be pinched together with the fingers over the needle during and for a few seconds after injection to prevent backflow and escape of oil employed as the solvent Tissue transplant technic affords a convenient means for assaying carcinogens directly against a variety of epithelial tissues The sensitivity of the test can be increased by addition of scarlet red to solutions containing the carcinogen to insure incorporation of the carcinogen into the cysts formed by the implanted epithelium, and by addition of croton oil to increase the responsiveness of the tissue The pure substance, tricaprylin, can be used to replace olive oil as a solvent for this work

Circulation, New York

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Failure of Histidine and Vitamin C, and of Ether, to Improve the Peripheral Circulation Report of Studies on Subjects with Normal Arterial Circulation and with Occlusive Arterial Diseases S J Weisman and E V Allen —p 127
Ballistocardiographic Findings in Patients with Symptoms of Angina Pectoris H R Brown Jr , M J Hoffman and V de Lalla Jr —p 132

Paroxysmal Ventricular Tachycardia —Armbrust and Levine reviewed 107 cases of paroxysmal tachycardia which were observed between 1915 and 1948 at the Peter Bent Brigham Hospital of Boston and in the private practice of one of the authors The ages of the patients varied between 13 and 83, but the majority were between 50 and 70 years The diagnosis can often be suspected by bedside examination but is better confirmed by electrocardiographic studies On clinical examination an occasional case may be overlooked because only one heart sound may be present to each cardiac cycle so that the physician estimates the rate at one-half of its actual value The underlying cause of the heart disease in 79 patients was coronary artery disease, generally with recent or old myocardial infarction Nine patients had rheumatic heart disease, 13 no heart disease and 6 miscellaneous conditions There were 27 patients who had recurrences of prolonged attacks over the course of months or years The duration of the prolonged attacks varied from hours to twenty-four days Digitalis played a role in the precipitation of paroxysmal ventricular tachycardia in only a small number of instances An attack of tachycardia may be symptomless but is frequently accompanied with substernal pain, sudden collapse, shock, dyspnea or syncope The immediate prognosis of the attack of tachycardia is good In all but a few subjects normal rhythm was resumed following appropriate therapy The ultimate prognosis is grave in those who have underlying coronary or valvular disease A fair number of these were able to carry on their occupation for years The prognosis is generally excellent in subjects without organic heart disease, but the threat of sudden death is present Death during a paroxysm occurred in 1 patient who had a structurally normal heart post mortem Magnesium sulfate administered intravenously was occasionally of value, potassium salts given orally were of no value in the few instances in which they were employed, and morphine given intravenously failed on the one occasion that it was tried The drug of choice was quinidine sulfate The oral administration was successful in 46 of 57 episodes The intravenous route used in the more desperate cases, was successful in 20 of 31 attacks The intelligent use of quinidine was of great value and not infrequently was life saving

Coarctation of Aorta —Gross says that coarctation of the aorta can be diagnosed or at least suspected by the intelligent use of the finger tips, a stethoscope and a sphygmomanometer Of greatest importance in detecting an aortic block is the disparity of blood pressures in the arms and legs Normally, the systolic level in the legs is 20 to 40 mm of mercury higher than that in the arms, in the presence of an aortic block the leg pressures are far below those of the arms If femoral pulsations are reduced in intensity, the pressures in the popliteal artery should be checked with a sphygmomanometer Electrocardiographic tracings are an important part of the examination, and roentgenographic studies are helpful The prognosis varies The condition may be tolerated through a long life with little incapacitation or may be accompanied with early and serious complications in the form of cardiac failure, aortic rupture or intracranial hemorrhage In a high percentage of patients it is possible to remove the aortic block and establish a pathway of satisfactory size The author has operated on 100 patients with coarctation Nine of these had only thoracic exploration, the observations in the chest were such that it seemed too risky to attempt removal of the aortic stricture There were 11 fatalities from various causes Seven of these deaths would now be regarded as avoidable by changes in operative technics which have currently been adopted and by refusal to operate in certain complicated types of cases in which the risk is exceedingly high It is reasonable to expect that the surgical mortality rate can be reduced to 5 or 6 per cent Of the 80 patients who survived operation, one had no relief of hypertension, 8 had fairly satisfactory relief and 71 had complete disappearance of hypertension Surgical therapy for coarctation appears to be on a sound basis and has a great deal to offer most persons who are afflicted with this abnormality

Gastroenterology, Baltimore

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*Effect of Vagotomy on Human Colon W J Grace, C W Holman, S Wolf and H G Wolff —p 536
Studies in Ulcerative Colitis I Study of Personality in Relation to Ulcerative Colitis V P Mahoney, H L Bockus, M Ingram, J W Hundley and J C Yaskin —p 547
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Gradual Evolution of Acute Infectious (Epidemic) Hepatitis into Post Hepatic Cirrhosis Case Report J I Baltz, H H Steele and F W Hartman —p 589
Case Report Aberrant Pancreatic Tissue in Stomach Wall M C Wheelock A J Atkinson and H A Teloh —p 594
Tetany from Small Bowel Resection and Small and Large Bowel Exclusion L D Mayer and L H Criep —p 597

Effect of Vagotomy on Human Colon —Vagotomy was introduced in 1947 by Dennis and Eddy as a therapeutic procedure for ulcerative colitis The anatomic basis for this procedure is not clear, since it is not certain that fibers of the vagus nerve reach the ascending colon An unusual opportunity to study the function of the human colon before and after vagotomy was afforded Grace and associates in the person of a fistulous subject with a large area of evaginated colonic mucosa He was observed before and after bilateral supradiaphragmatic vagotomy, performed as a therapeutic procedure for ulcerative colitis The patient was a mechanic 26 years of age who had had ulcerative colitis for six years Therapeutic cecostomy had been performed two years after the onset, but because of extension of the process an ileostomy was required two years later The cecostomy closed spontaneously, but shortly thereafter a cecal fistula developed through which a loop of ascending colon and cecum prolapsed onto the surface of the abdomen A small section of ileum was also included in this isolated loop of exposed bowel From a direct study of the colonic mucous membrane and measurements of contractile activity, mucus and lysozyme secretion before and after vagotomy, there was no evidence that vagotomy altered the behavior of the colon or protected it from acute exacerbations of chronic ulcerative colitis

International J of Leprosy, New Orleans

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Surgical Treatment of Primary Lesion of Leprosy R. Boenjamin—p 217
*Infectivity of Neural Leprosy A R. Davison—p 247
South African Leprosy Laws and Control Policy P D Winter—p 253

Infectivity of Neural Leprosy—Davison says that most countries in which leprosy legislation has been found necessary have divided their control measures into two sections that concerned with open or bacillus discharging cases and that concerned with closed, or bacillus-negative cases All lepromatous cases fall in the first group and most neural cases in the second one Although it has been demonstrated that neural leprosy is much less infective than lepromatous leprosy, the author warns that this should not be interpreted that neural leprosy offers no public health problem He refutes this argument on the following grounds (1) Neural leprosy is caused by Mycobacterium leprae in the skin as well as in the nerves, (2) neural cases of leprosy sometimes discharge M leprae, (3) patients with neural leprosy have infected others, and (4) endemic leprosy can become epidemic He cites corroborating evidence for these points and analyzes data on 157 patients with neural leprosy admitted in 1940 to the Westfort Institution in Pretoria, Union of South Africa Since no less than 38 of these 157 patients with neural leprosy have shown positive smears, it appears that a great many more would have become dangerous to the public health if they had not been segregated and treated Twenty two of these 38 patients with neural infections had become lepromatous To prove that endemic leprosy can assume epidemic proportion the author cites the case of the island of Nauru In 1920 there were 3 known cases in a population of about 2,600, in that year there was an influenza epidemic, four years later 30 per cent of the population showed signs of leprosy

Journal of Neurophysiology, Springfield, Ill

12 363-494 (Nov) 1949 Partial Index

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Journal of Urology, Baltimore

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*Results Obtained in Treating Genito-Urinary Tuberculosis with Streptomycin T R Huffines and W D Weber—p 862
*Treatment of Genito Urinary Tuberculosis with Streptomycin Alone J K Lattimer J B Amberson and S Braham—p 875

Nephrectomy for Renal Tuberculosis—Oppenheimer and Narins believe that use of streptomycin in the treatment of genitourinary tuberculosis may change the present concept as to what constitutes 'surgical" renal tuberculosis Some investigators hold that surgical intervention is indicated when renal tuberculosis is evidenced by unilateral pyelographic changes and positive smears for tubercle bacilli When pyelographic changes are not present but smears are positive the use of streptomycin without surgery is justified Others believe that all patients with urinary tuberculosis should be treated with streptomycin and that nephrectomy can be relegated to a position below that of streptomycin and rest Of the 117 patients (71 males and 46 females) reported by Oppenheimer and Narins 106 were nephrectomized for unilateral renal tuberculosis and 11 were not treated surgically either because of demonstrable bilateral renal tuberculosis or active extrarenal infection Of the 106 surgically treated patients, 2 died postoperatively and 8 were lost to follow-up leaving 96 that have been followed Subsequently, in 15 of the operative cases genital or osseous tuberculosis developed and in 17 cases contralateral renal involvement developed There were also 17 cases of residual tuberculous cystitis The average length of survival of the patients in whom genital or osseous tuberculosis developed postoperatively was 7 3 years, of those with contralateral involvement, 6 2 years, and of those with residual tuberculous cystitis 8 6 years The authors are of the opinion that nephrectomy for unilateral renal tuberculosis affords the patient a better than even chance for a five to ten year survival, the survival rate being 57 3 per cent. Until results in a long-followed series of patients treated solely with streptomycin can be shown to compare favorably with those in surgically treated cases nephrectomy must be regarded as a reliable method for unilateral renal tuberculosis

Treatment of Genitourinary Tuberculosis with Streptomycin—Huffines and Weber say that in their experience with streptomycin therapy in 59 cases of genitourinary tuberculosis they have been able to bring about at least temporary arrest of the process with obvious immediate benefit in 82 per cent of the patients In those in whom no definite change resulted from this therapy, they have at least noted a palliative effect The appearance of the cannulized tracts, notably the ureters has paralleled that of ulcerative lesions of the air passages, which regularly respond well to streptomycin therapy They were able to perform surgical procedures with the aid of streptomycin in patients who would have been abandoned surgically because of the complications which would have been certain to arise and for which there would have been no remedy without streptomycin The tubercle bacillus tends to show resistance to streptomycin on the forty-fifth day of therapy With this in mind, it was decided to reduce the duration of the period of streptomycin treatment to forty two days instead of one hundred and twenty days The authors believe that the only acceptable statistics today are those of the Veterans Administration For several years the Veterans Administration has followed a rigid protocol and it is only by adherence to this protocol, modified from time to time that any worthwhile data can be compiled

Streptomycin Alone in Genitourinary Tuberculosis—Two hundred and fifty-three cases of genitourinary tuberculosis have now been treated with streptomycin by the Veterans Administration, Army and Navy Research Group Lattimer and his associates stated that the most effective dosage regimen against active ulcerating renal lesions, when streptomycin alone was used, was 0 3 Gm every four hours day and night for one hundred and twenty days As the dosage or time of treatment were lessened, the effectiveness decreased Forty-two day regimens were inadequate Large renal lesions responded poorly Most patients with renal tuberculosis were not discovered until their lesions were large enough to be visible in the pyelogram Any lesion which was visible in the pyelogram probably contained necrotic and fibrous tissue and was classified as a large renal lesion In this group of patients tubercle bacilli disappeared from the urine in only 25 per cent of the cases, although in many additional instances the progress of the disease was apparently slowed or halted Surgical treatment was preferred for such renal lesions if the active disease was unilateral Small renal lesions responded well The rare tuberculous renal lesion which was discovered by examining the ureteral urine before there was a visible pyelographic lesion probably contained less necrotic and fibrous tissue In the pilot series, urine from eight of ten such kidneys became consistently negative In patients with cystitis and ureteritis, superficial ulcerations and edema responded well to streptomycin treatment Contracted bladders and strictures due to deep-seated fibrous lesions did not improve Prostatic and epididymal tuberculosis did not respond sufficiently well to merit the use of streptomycin except when severe cystitis had resulted from local extension of the lesion into the bladder Epididymal tuberculosis was preferably treated by surgical measures accompanied with three weeks of streptomycin therapy The development of resistance and the presence of necrotic, caseous or fibrous tissue were the chief limiting factors If treatment was started early enough the results were excellent Surgical intervention was preferable to streptomycin therapy for large tuberculous lesions of the kidney or epididymis containing necrotic tissue A three week course of streptomycin, 0 5 Gm every twelve hours, was given at the time of any operation on a tuberculous organ Combined therapy using streptomycin and paraaminosalicylic acid appears promising Paraaminosalicylic acid is a tuberculostatic agent whose action is similar to that of a sulfonamide drug It has been widely used in Sweden and other parts of Europe, where the results are said to be about the same as those reported with streptomycin, although not achieved as rapidly There is evidence that paraaminosalicylic acid may be effective against tubercle bacilli which are resistant to streptomycin

Michigan State Medical Society Journal, Lansing

48 1425-1566 (Dec) 1949

Subacute Bacterial Endocarditis G E McKeever and S G Meyers.—p 1457
Bacterial Endocarditis Caused by Hemolytic Staphylococcus Albus Treated with Aureomycin A W Allen and H H Riecker—p 1461
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Employment Problems Faced by Cardiac Patient J G Bielawski—p 1468
Periarteritis Nodosa Review and 2 Case Reports W H Gordon and L E Davison—p 1472
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Sickle Cell Anemia Complicated by Pregnancy M Dale—p 1484
Protective Sterilization in Michigan C J Gamble—p 1487
Diagnosis and Surgical Treatment of Deafness J E Croushore—p 1489

Military Surgeon, Washington, D C.

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Medical Department of the Army—Current Status Report. G E Armstrong—p 30
Medical Groups (T/0 8 22) of First U S Army in European Campaign I Beach Head, Break Through and Pursuit F P Kintz and J Edgar—p 34
Experiences with Amebiasis in Highly Endemic Area of Tsingtao, China. H L Jones Jr—p 40
Simple and Rapid Urine Test for Estimating Severity of Chronic Infection and for Controlling Dosage of Vaccines A F Griffiths and G H Chapman—p 53

New England Journal of Medicine, Boston

242 1-38 (Jan 5) 1950

Two-Year End Results in Total Rehabilitation of Veterans with Spinal Cord and Cauda Equina Injuries. D Munro—p 1
*Myocardial Infarction Following Administration of Tetanus Antitoxin J F McManus and J J Lawlor—p 17
*Value of Enteric Coated Aspirin R H Talkov, M W Ropes and W Bauer—p 19
Collections of Subdural Fluid Complicating Meningitis Due to Haemophilus Influenzae (Type B) Preliminary Report. R. J McKay Jr, R A Morissette, F D Ingraham and D D Matson—p 20
Toxicology J T Walker—p 22
Post Infectious Hepatitis, with Cirrhosis—p 26
Subacute Bacterial Endocarditis of Mitral Valve Cerebral Embolism and Infarction—p 29

Myocardial Infarction Following Administration of Tetanus Antitoxin—McManus and Lawlor report the case of a 32 year old truck driver, who, because of a puncture wound of the right foot, was given 1,500 units of tetanus antitoxin subcutaneously after a negative reaction to an intracutaneous test Several days later serum sickness with signs of generalized urticaria appeared Two days later severe, persistent substernal pain suddenly developed, for relief of which morphine was given An electrocardiogram two days after the onset of substernal pain showed a sinus tachycardia and an auriculoventricular block with a PR interval of 0.24 seconds The QRS and ST-T changes were consistent with a recent posterior wall infarction Serial tracings showed disappearance of the auriculoventricular block, with evolutionary QRS and ST-T changes that were characteristic of healing posterior wall infarction The authors feel that the age of the patient and the absence of demonstrable arteriosclerosis, hypertension, syphilis, diabetes or antecedent heart disease suggest that some unusual mechanism produced coronary occlusion and myocardial infarction The cardiac complication occurred at the height of the cutaneous manifestation of serum sickness, after the administration of tetanus antitoxin It is believed that the serum sickness resulted in coronary arteritis of the type that has been produced experimentally in rabbits by the injection of horse serum and similar to the morphologic alterations observed in human beings who have received therapeutic injections of horse serum Evidence has recently been offered that the development of these experimentally produced myocardial lesions in rabbits can be impeded by the administration of antihistaminic drugs Certain other injected materials, including penicillin, streptomycin, insulin and liver extract, occasionally produced changes in sensitive persons that closely resemble the cutaneous reactions encountered after the injection of horse serum If the injection of horse serum can lead to the development of myocardial infarction, it may be expected to follow the use of other injected materials

Enteric-Coated Aspirin (Acetylsalicylic Acid)—Talkov and his associates point out that enteric-coated aspirin (acetylsalicylic acid) has an analgesic effect equal to that of regular acetylsalicylic acid and the onset of its action is only slightly delayed It is of value in the treatment of patients who are unable to tolerate regular acetylsalicylic acid because of gastric symptoms of local origin Its use is especially advantageous in such cases when maximal dosage is required to control pain The use of such a preparation is suggested also for patients with hemorrhagic gastritis due to acetylsalicylic acid and for those with peptic ulcer who require acetylsalicylic acid therapy

New Jersey Medical Society Journal, Trenton

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Cardiologic Aspects of Certain Rheumatic Diseases A D Dennison Jr—p 4
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Hydryllin for the Common Cold M M Kessler—p 29
Hydatidiform Mole Report of Unusual Case. P Grossbard—p 30

New York State Journal of Medicine, New York

50 1-112 (Jan 1) 1950

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Rehabilitation of the Paraplegic H Kessler and A. S Abramson —p 43
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Returning the Patient to Normal Activity Following Injury L A Goldstein and R P Schwartz —p 51
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Interstitial Cystitis in the Male J E Heslin and C Mamonas.—p 59
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Public Health Problems in New York City During the Nineteenth Century G Rosen —p 73
Use and Action of New Antibiotics—Aureomycin Chloromycetin and Bacitracin E Neter —p 79
Carcinoma of Prostate Review of 162 Cases with Pathologic Classification N C Foot G A Humphreys and E C Coats —p 84
Sigmoidoscopy and Biopsy R Turell and B J Garson —p 89

North Carolina Medical Journal, Winston-Salem

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Postgraduate Medicine, Minneapolis

7 1-84 (Jan) 1950

*Treatment of Erythroblastosis Fetalis by Exchange Transfusion A S Wiener —p 1
Hearing Aids Procedures for Testing and Selection W G Hardy —p 11
Surgery of Bile Ducts J T Priestley —p 18
Cytodiagnosis in Gastric Carcinoma L I Platt —p 26
Treatment of Hereditary Cephalalgia C M Charles —p 33
Male Sexual Relationships Deviation from Normal C P Segard —p 36

Exchange Transfusion for Erythroblastosis Fetalis—Wiener summarizes experiences in a series of 80 cases of erythroblastosis fetalis treated by exchange transfusion Of the 80 cases, 76 were typical instances of Rh sensitization and included 2 sets of twins, while 4 were due to A-B sensitization The mortality was only 15 per cent, in contrast to a mortality rate of 30 to 75 per cent following more conservative treatment. All the babies who survived after exchange transfusion have developed normally both mentally and physically, while neurologic sequelae occur in 10 to 30 per cent of erythroblastotic babies surviving after more conservative treatment. Thus, therapy by exchange transfusion not only saves erythroblastotic babies but also prevents the occurrence of neurologic sequelae The method of delivery of an erythroblastotic baby has a definite effect on the prognosis Among 16 babies delivered by cesarean section, as many as 8, or 50 per cent, died, while only 5 out of 66 babies born spontaneously or delivered prematurely by medical induction died Thus, if cesarean section is avoided, the mortality of the disease in erythroblastotic babies born alive and treated by exchange transfusion can be reduced to less than 10 per cent The maternal antibody titer is important, because the higher the titer, the more apt is the Rh positive fetus to be stillborn When the stillbirth does not occur before the period of viability is reached, babies who would otherwise be stillborn can be saved by termination of the pregnancy prematurely by medical induction (not cesarean operation unless a maternal indication is present) and treating the baby by exchange transfusion The different steps of the technic of the exchange transfusion are shown in illustrations

Proc Soc Exper Biol. & Med, Utica, N Y

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Essential Hypertension Therapeutic Trial of Veriloid New Extract of Veratrum Viride R W Wilkins J R Stanton and E D Freis —p 302
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Effect of Mercury on Renal Tubular Transfer of *p*-Aminohippurate and Glucose in Man R K McDonald and J H Miller —p 408
Appearance of Acetylcholine During Normal Labor Hsi Chun Chang Khati Lim Hui Fang Yeh and others —p 413
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Cinchophen Choleresis and Production of Peptic Ulcer in Various Species D F Magee K S Kim and A C Ivy —p 428
Absorption and Excretion of Streptomycin Para Aminosalicylate J D Adcock R M Stow R Rabezzana and K Irwin —p 451
Renal Excretion of Digitoxin in Man Following Oral Administration M Friedman S O Byers R Bine Jr and C Bland —p 468
Adrenotrophic Activity of Human Urine W Locke A. Albert and E J Kepler —p 470
Plasma Levels of Radioactive Iodine (I^{131}) in Human Tracer Studies H S Rollman and D W Petit.—p 474
*Distribution of Vitamin B_{12} in Natural Materials U J Lewis, U D Register H T Thompson and C A Elvehjem —p 479

Natural Sources of Vitamin B_{12}—Lewis and his associates point out that the increasing use of vitamin B_{12} in the treatment of human macrocytic anemias and in certain natural rations for farm animals makes the knowledge of the distribution of this vitamin in biologic materials of real importance A rat assay for vitamin B_{12} has been used with considerable success in their laboratory A sample of 'slops" from streptomycin production was found to be high in vitamin B_{12} Commercial condensed fish solubles showed high activity Sheep rumen contents were exceedingly active, which suggests a synthesis of this vitamin within the rumen Milk, cheese, meats and egg yolk were found to be relatively good sources of the vitamin Dried soybean sprouts, barley, fresh potatoes beans cabbage, green peas, alfalfa leaf meal and fresh grass contained no significant amount It appears that plant materials do not contain measurable amounts of vitamin B_{12}

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Intravenous Infusions of Concentrated Combined Fat Emulsions into Human Subjects B G P Shafiroff J H Mulholland and E. Roth. —p 543
Effect of Aureomycin on Herpes Simplex Virus in Embryonated Eggs. G D Baldridge and H Blank —p 560
*Remission of Disseminated Lupus Erythematosus Induced by Adrenocorticotropin A W *Grace* and F C Combes —p 563
Cardiodepressive Effects of Mercurial Diuretics Cardioprotective Value of BAL Ascorbic Acid and Thiamin A Ruskin and J E Johnson —p 577
Inhibition of Urinary Excretion of 17 Ketosteroids by Caronamide. G W Bissell H P Longstreth and F M Gilbert.—p 584
Distribution of Chloramphenicol (Chloromycetin) and Its Metabolic Products Between Human Red Cells and Plasma A J Glazko L. M Wolf and W A Dill —p 602
Effects of Hemorrhagic Shock upon Electroencephalogram. H A. Davis W R. Grant W P McNeill and others —p 641
Vitamin B_{12b} Properties and Its Therapeutic Use H Lichtman J Watson V Ginsberg and others —p 643
Treatment of Trichomonas Vaginalis Vaginitis with Aureomycin L. V McVay R. L Laird J B Flanagan and D H Sprunt.—p 674
Substance in Egg Yolk Which Inhibits Deterioration of Aureomycin Activity C R Womack, E H Kass, E B Wells and M Finland. —p 706

Pituitary Adrenal Corticotropic Hormone (ACTH) in Lupus Erythematosus—Grace and Combes report 2 patients with classic disseminated lupus erythematosus who were given three separate courses of injections of pituitary adrenal corticotropic hormone (ACTH) In each case, there was a tem porary, striking clinical improvement and fading of the skin lesions, accompanied with the expected signs of increased adrenal cortical activity These results suggest that continued administration of pituitary adrenal corticotropic hormone or compound E (cortisone) may be of benefit in lupus erythematosus

Psychiatry, Washington, D C

12 325-450 (Nov) 1949 **Partial Index**

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Existentialism and Its Relations to Psychotherapy E Weigert—p 399
Psychodynamics of Alcoholism in Woman D Noble—p 413
Use of Rorschach Test in Assessment of Change in Patients Under Psychotherapy M J Rioch—p 427

Psychoanalytic Quarterly, Albany, N Y

18 419-564 (Oct) 1949

Mania and Sleep B D Lewin—p 419
Ego Functions and Dreams B Mittelmann—p 434
Post Traumatic Dream R M Loewenstein—p 449
Dreams and Hypnosis M Brenman—p 455
Sense of Time in Dreams A Gross—p 466
Technic of Dream Analysis and Field Work in Anthropology G Roheim—p 471

Southern Medical Journal, Birmingham, Ala

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The Doctor's Responsibility to His People S P Kenyon—p 12
Nationalized Medicine and Welfare State E E Irons—p 17
Overprotection Will It Mean the End of Civilization as We Know It? J L Anderson—p 20
Surgical Treatment of Aortic Aneurysm W W Babcock—p 23
Pruritus Ani Appraisal of Current Therapy C Rosser—p 26
Power Exercises in Medicine G D Wilson—p 29
Fractures of Tibial Plateau H Winkler and C Young Jr—p 35
Temporal Arteritis Report of Case Treated with Intravenous Histamine DeVoe K Meade L S Blumenthal and D B Holmes—p 40
Complete Heart Block Associated with Pregnancy Report of 2 Cases H Ferguson and C E Porter—p 44
Simple Method of Determining Blood Loss T Harrison and P W Harrison—p 46
Incidence of Sickle Cell Trait in Negroes from Sea Island Area of South Carolina P K Switzer—p 48
*Hemopoietic Response of Patients with Pernicious Anemia to Crystalline Vitamin $B_{12}b$ T D Spies, R E Stone M B Koch and others—p 50
Gout, Diabetes Mellitus and Obesity Poorly Appreciated Syndrome H T Engelhardt and E L Wagner—p 51
Tetanus Study of 105 Cases O F Noel and B McSwain—p 53
Office Management of Localized Neurodermatitis R W Fowlkes—p 56
Patent Ductus Arteriosus Report of 180 Operations C P Lynxwiler and C R E Wells—p 61
Surgeon's Work H Mahorner—p 67
Gastro-Enterologic Internist G McHardy—p 71
Diabetes and Pregnancy W M Woodall Jr—p 73

Hemopoietic Response to Vitamin $B_{12}b$—Spies and his associates say that Smith noted the presence of more than one hemopoietically active substance in liver extract Kaczka, Wolf and Folkers produced a crystalline product of vitamin B_{12} by means of a catalytic reaction with hydrogen They designated this new compound vitamin $B_{12}a$ It has been shown to have hemopoietic activity in a patient with pernicious anemia Pierce and others separated from a B_{12} concentrate a crystalline fraction which had a somewhat different absorption spectrum from vitamin B_{12} Fractional precipitation with acetone yielded small rodlike, red crystals which contained cobalt and phosphorus These crystals were active in assay The investigators suggested the term vitamin $B_{12}b$ for this preparation Spies and others tested the hemopoietic activity and clinical response of this substance in persons with pernicious anemia All 4 patients with pernicious anemia in whom they employed vitamin $B_{12}b$ had a satisfactory response

Southwestern Medicine, El Paso, Texas

30 265-296 (Dec) 1949

Tumors of Adult Renal Parenchyma R F Thompson—p 277
Recent Concepts in Treatment of Whitlow (Bone Felon) W E Lockhart—p 284

31 1-32 (Jan) 1950

Treatment of Snake Bites R Holt—p 13
Pruritis Ani S M Ramer—p 16
Surgical Management of Duodenal Ulcer L Bennett—p 18

Texas State Journal of Medicine, Fort Worth

46 1-64 (Jan) 1950

Advantages of Right Lateral Decubitus in Cholecystography B R Kirklin—p 5
*Clinical Significance of Quiescent Gallstones R Sparkman—p 8
Surgical Treatment of Gallstones and Their Complications S F Marshall—p 12
Pathogenesis of Acute Cholecystitis with Reference to Early Operation. A B Small—p 18
Chronic Headache G M Hilliard—p 21
Protruded Intervertebral Disk Syndrome Conservatism in Management. R A Munslow and J J Hinchey—p 24
Hypogastric Sympathectomy for Dysmenorrhea Evaluation and Technique of Operation S P Todaro—p 28
Use of Hyaluronidase in Ophthalmology S N Key Jr and S N Key—p 31
Modern Treatment of Meningitis A L Hoyne—p 33

Quiescent Gallstones—According to Sparkman the incidence of gallstones in the general population is about 10 per cent and about 1 in 20 who have gallstones will have carcinoma Simple cholecystectomy has been accomplished with mortality rates as low as 0.2 per cent. Mortality rates of less than 1 per cent are common In the presence of complications such as common duct stone or acute attack, distinct rises in surgical mortality rates may be anticipated On the basis of statistical study the expected mortality from carcinoma of the gallbladder is greater than that of prophylactic cholecystectomy applied to all cases of quiescent stone in which the patient is of suitable age and physical condition Since carcinoma of the gallbladder is always fatal, because there is no effective treatment, prevention by removal of the diseased gallbladder is important In the aged or otherwise infirm the value of prophylactic cholecystectomy must be balanced against the life expectancy and the added hazard of operation

Virginia Medical Monthly, Richmond

77 1-52 (Jan) 1950

Present Day Concept of Industrial Medicine R L Wells—p 4
Routine Episiotomy and Immediate Perineorrhaphy M P Rucker—p 8
What Happened in Poliomyelitis in Virginia in 1948 A S McCown—p 11
*Present Status of Electroencephalography and Its Importance in General Practice of Medicine. I S Zfass—p 18
Psychiatric Aspects of Surgery with Special Reference to Post Operative Psychic Shock F Jacobson—p 25
Recurring Pulmonary Infection from Intermittent Partial Inflammatory Bronchial Obstruction Report of Case. P P Vinson—p 32

Importance of Electroencephalography for General Practice—Zfass discusses the present status of electroencephalography and stresses that his method is no longer an experimental procedure and that the electroencephalographic laboratory is a necessary component of any modern general hospital He describes some of the newer technics of recording and activation and presents the indications for electroencephalography He discusses Jasper's new classification of the epilepsies with special regard to neurosurgery and emphasizes the importance of more adequate electroencephalographic studies in the differential diagnosis of the epilepsies Since the majority of patients with epilepsy are treated by the general practitioner, it is necessary that he be adequately informed of the role of electroencephalography Cooperation between the general practitioner and specialists in the encephalographic technics is of great importance in the proper treatment of epileptic patients

Western J Surg, Obst & Gynecology, Portland, Ore

57 569-620 (Dec) 1949

That Strange Dangerous Malady—The Crush Syndrome P B Price and H V Rizzoli—p 569
Clinical Effect of Luteotrophin on Human Lactation Preliminary Study D M Perese and A W Diddle—p 576
Mechanism of Primary Dysmenorrhea L B Greentree—p 578
Candida Albicans and Vulvovaginitis M Joseph, J R Gannon and C H Gowen—p 582
Intravenous Use of Methergine in Intrapartum Care M S Priver, J M Harris L Krohn and H H Boros—p 586
Case of Carcinoma of Vulva Involving Only Prepuce and Clitoris K C Sawyer, W G Baker and H E McClure—p 589
Endometrial Sarcoid with Report of 2 Cases M Vesell—p 592
Rectosigmoidal Electrode R. Turell—p 596
Cancer Therapy E B Speir—p 597
Sexual and Psychological Adjustment After Sterilization Follow Up of 48 Married Sterilized Women in North Carolina M Woodside—p 600

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted Single case reports and trials of new drugs are usually omitted

Annals of Rheumatic Diseases, London

8 257-336 (Dec.) 1949

*Muscle Lesions in Rheumatoid Arthritis M Horwitz —p 258
Morquio-Brailsford s Disease Simulating Arthritic Manifestation of Rheumatoid Disease P Ellman —p 267
Effect of Blood Transfusion on Rheumatoid Arthritis N R. W Simpson G D Kersley and D H Brooks —p 277
Stimulation of Suprarenal Glands in Treatment of Rheumatoid Arthritis Preliminary Report Z Z Godlowski —p 285
Treatment of Rheumatoid Arthritis with Adenosintriphosphoric Acid (ATP) B Carlstrom and O Lövgren —p 293
Neutral 17 Ketosteroids in Rheumatoid Arthritis and Spondylitis M H L Desmarais —p 296
Differential Sheep Cell Agglutination Test in Rheumatoid Arthritis. R Brown J J Bunim and C McEwen —p 299

Muscle Lesions in Rheumatoid Arthritis—Horwitz, in muscle biopsies, found nodules in the endomysium or in the perimysium in 14 of 34 cases of rheumatoid arthritis The histologic aspects resembled those which in the literature are generally referred to as "nodular myositis" The lesions were noted in active and in "burned out" cases The nodules were detected readily on histologic examination In some cases they were sufficiently large to be visible to the naked eye. In an examination of muscles of a control series of 20 cases by biopsy or at autopsy similar inflammatory nodules were found in only 1 case a case of gout Certain additional features rendered the differentiation possible from the "nodular myositis" seen in rheumatoid arthritis Two cases of polyarteritis nodosa showed the characteristic vascular lesions of that disease Muscle examination in 2 cases of polyarteritis nodosa showed the characteristic vascular lesions A review of the literature revealed that some investigators have reported the occurrence of "nodular myositis" in a miscellaneous collection of diseases Their findings indicate that "nodular myositis" is a comparatively common condition in a wide variety of diseases and that it is of no diagnostic value in cases of rheumatoid arthritis The number of control cases in this series was too small to permit final conclusions, but the results were more in conformity with the "negative" findings noted by most investigators in the examination of muscle in control cases

British Journal of Ophthalmology, London

33 721-788 (Dec.) 1949 **Partial Index**

*Investigations into Hyaluronic Acid and Hyaluronidase in Subretinal Fluid in Retinal Detachment Partly Due to Ruptures and Partly Secondary to Malignant Choroidal Melanoma Preliminary Report Suggesting New Hypothesis Concerning Pathogenesis of Retinal Detachment. E Godtfredsen —p 721
Choroidal Sarcoma with Metastasis in Opposite Orbit. S Philps —p 732
Adeno-Carcinoma (Mixed Tumor) of Lacrimal Gland. N Fleming —p 763
Thyroidectomy and Thyrotropic Exophthalmos (Exophthalmic Ophthalmoplegia) Review of 1 001 Thyroidectomies H Ryan —p 769
Glass Rod Test in Glaucomatous Eyes T L. Thomassen —p 773
Extraction of Cataract in Case of Sympathetic Ophthalmia F W G Smith —p 779

Hyaluronic Acid in Subretinal Fluid—Godtfredsen reports studies on the hyaluronic acid and hyaluronidase content of the subretinal fluid in retinal detachments, either primary with ruptures or secondary as a consequence of malignant choroidal melanoma In all cases of detachment with retinal ruptures the subretinal fluid contained a considerable amount of hyaluronic acid, which was absent when the detachment was secondary to choroidal melanoma. Hyaluronidase was demonstrated in none of the cases These observations prompted a new hypothesis concerning the pathogenesis of retinal detachment The development is now conceived to take place gradually by a primary, vascular retinal ischemia producing cystoid degeneration with rupture formation and associated with partial liquefaction of the vitreous body The liquefaction is caused by local liberation of hyaluronidase, which in turn produces partial depolymerization of the hyaluronic acid in the vitreous body Tests for hyaluronic acid in the subretinal fluid may become of differential diagnostic importance in difficult cases of malignant melanoma with extensive secondary retinal detachment and small primary tumor Hyaluronic acid analyses may prove of prognostic value in the diathermal treatment of retinal detachment Since hyaluronidase may be inactivated by antihistamines, the possibility of a supplementary causal treatment with these substances is suggested

British Medical Journal, London

2 1485-1540 (Dec 31) 1949

Quantitative Approach to Study of Transplantable Tumours J Craigie —p 1485
Anticoagulant Therapy H W Fullerton and G Anastasopoulos —p 1492
Excretion of Chorionic Gonadotrophin by Pregnant Diabetics. J A Loraine —p 1496
Vitamin A Total Carotenoids, and Thymol Turbidity Levels in Plasma Test in Normal Subjects Residing in the Midlands During 1947 D A Campbell and E L Tonks —p 1499
Chloramphenicol in Treatment of Infantile Gastro-Enteritis Preliminary Report K B Rogers S J Koegler and J Gerrard —p 1501
Paratyphoid B Fever Treated with Chloramphenicol M Curtin —p 1504
Diffraction Methods of Measuring Red Cell Diameters Their Use in Clinical Haematology A J Hird —p 1506
Two Successful Resections for Carcinoma of Pancreas H Dodd —p 1509

Edinburgh Medical Journal

56 445-508 (Oct.) 1949

Incoordinate Uterine Action C Kennedy —p 445
Regional Ileitis J S Jeffrey —p 461
Chemotherapy in Reticulosis. J Innes.—p 481

Lancet, London

2 1163-1208 (Dec. 24) 1949

Family Doctor Impact of Modern Therapeutic Ideas on General Practice R J Perring —p 1163
*Insulin Test for Vagal Section B N Brooke —p 1167
Sulphetrone in Pulmonary Tuberculosis H V Morlock and R Livingstone —p 1170
Allergic Specificity of Pollens E Budd and J Freeman —p 1171
*Aspirin in Treatment of Vascular Diseases P C Gibson —p 1172
Cervicodorsal Osteomyelitis with Extradural Abscess D B Allbrook —p 1174
Spondylitis Ankylopoietica with Severe Anaemia Presenting as Acute Abdominal Disease E de C Falle and E M Bennett —p 1175
Infantile Cortical Hyperostoses M MacGregor and R Davies —p 1176
D D T Poisoning in Man Suspected Case A. M G Campbell —p 1178

Insulin Test for Vagus Section.—Brooke emphasizes the need for a reliable standardized test that will prove vagus activity following vagus section. Hollander's insulin test has not been standardized, and its results may be equivocal The only certain information to be gained from the test arises from a positive or secretory response, which indicates definite vagus activity With a negative response it cannot definitely be said that all the nerve fibers have been cut, for the stimulation may have been insufficient to reveal activity from just a few residual fibers Hollander stated that in applying the test to man it is sufficient to reduce the blood sugar to 50 mg per hundred cubic centimeters Brooke questions this, pointing out that at the Queen Elizabeth Hospital it has been possible to study the 40 to 50 mg range more closely 182 tests were made on 177 patients before vagotomy These tests demonstrated that in man the blood sugar level must be reduced to 45 mg per hundred cubic centimeters or below before the test can be regarded as satisfactory Further, any argument that the acid response depends on the degree of fall from the fasting blood sugar level, or on the rate of fall, was proved invalid Brooke discusses the method and the dose of insulin for the test The only certain information to be obtained from the insulin test is that vagus fibers are intact when an acid secretion is obtained One test only is required for routine purposes, and this is best performed at least six months after the operation when difficulties which might arise from gastric stasis and insulin resistance are obviated. The patient is given 10 units of insulin intravenously after a twelve hour fast. A blood sample is taken thirty minutes after the injection to assess the blood sugar level and if possible another sample is obtained forty minutes after injection.

Acetylsalicylic Acid in the Treatment of Vascular Diseases—Gibson says that because acetylsalicylic acid is an anticoagulant and relieves pain he had previously suggested that it might be effectively used in coronary thrombosis During the past nine months it has been widely used for anginal pain by numerous physicians in the area where the author practices, and he sent a questionnaire to twenty-two physicians, of whom twenty replied Five of these had not used the drug Of the fifteen who had, eight considered it of undoubted value in relieving and preventing anginal pain, the rest thought that it was of some value, none considered it useless The author believes that a more extensive trial of acetylsalicylic acid is justified, pointing out that salicylates have maintained their reputation for effectiveness in the treatment of rheumatic carditis for more than fifty years with little scientific justification Perhaps a common factor in the pathogenesis of these two conditions is increased coagulability of the blood The 4 histories presented indicate that the usual dosage was 10 or 20 grains (0 65 or 1 29 Gm) of acetylsalicylic acid three times per day To avoid inflammation of the gastric mucosa the author gives the drug suspended with tragacanth immediately after a meal, and he adds 50 mg of ascorbic acid, because salicylates increase the excretion of vitamin C For coronary thrombosis, the 20 grain dose of acetylsalicylic acid is given every four hours after meals and during the night after a cupful of warm milk This regimen is continued for ten days or until the erythrocyte sedimentation rate and leukocyte count are normal The 10 grain dose is then substituted and given four times daily for as long as seems desirable For anginal pain without evidence of thrombosis the author usually prescribes the 10 grain dose to be taken three or four times daily for as long as is required

2 *1209-1248 (Dec 31) 1949*

Temporomandibular Arthrosis J Foged —p 1209

Comparison of Anti Thyroid Activity of *Para Aminobenzoic Acid and Thiouracil Compounds* J F Goodwin, H Miller and E J Wayne —p 1211

Pneumoconiosis After Exposure to Sulphur Dioxide Fumes and Dust from Coke Fires L Dunner, R Hardy and D J T Bagnall —p 1214

Mechanism of Cutaneous Reactions to Insulin R C Paley —p 1216

Protracted Nervous Complications of Typhoid Fever G H Jennings —p 1218

*Deoxycortone with Ascorbic Acid Versus Adrenocorticotropic Hormone in Rheumatoid Arthritis T D Spies, R E Stone E de Maeyer and W Niedermeier —p 1219

Syphilitic Bursitis with Report of Case E W P Thomas and A J Rook —p 1221

Deoxycortone with Ascorbic Acid Versus Adrenocorticotropic Hormone in Rheumatoid Arthritis —Spies and his associates selected patients with rheumatoid arthritis, restricted them to a low sodium diet and gave them injections of deoxycortone acetate and ascorbic acid They noted no relief from the combined injections of deoxycortone acetate and ascorbic acid Since Lewin and Wassen had observed relief lasting two to six and even up to twenty-four hours, Spies and associates continued their observations a few days longer but saw no amelioration of symptoms, despite almost simultaneous injection of the two agents They then gave 3 of their patients pituitary adrenal corticotropic hormone (ACTH), 8 mg four times a day, the other 3 were given injections of distilled water Both groups remained on the same diet, in which the sodium intake was restricted, and received the daily injections of deoxycortone acetate The 3 receiving pituitary adrenal corticotropic hormone were improved within eight hours, this improvement continued steadily during the three days in which the injections were continued The pituitary adrenal corticotropic hormone was then discontinued, and the patients promptly relapsed

Medical Journal of Australia, Sydney

2 733-764 (Nov 19) 1949

Cardiac Infarction and Coronary Disease in General in Post Mortem Examinations J B Cleland —p 733

Aspects of Pathology of Thermal Burns F C Courtice —p 738

Controls in Treatment of Burns T F Rose —p 741

*Longevity of Paraplegics P G Dane —p 746

Longevity of Paraplegics —Dane cites 2 patients, ex-soldiers, both of whom have been completely paraplegic, one for thirty-two years and the other for thirty-three years A total of 10 paraplegics had been treated, the other 8 died within three years

Anales de la Cátedra de Clínica Médica, Buenos Aires

3 1-326, 1949 Partial Index

*Propylthiouracil Medical Treatment of Hyperthyroidism E S Mazzei —p 7

*Subacute Thallium Poisoning BAL Therapy E S Mazzei and F Schaposnik —p 49

Medical Treatment of Hyperthyroidism —According to Mazzei propylthiouracil is the most reliable drug in the treatment of hyperthyroidism The therapeutic dose is smaller than that of thiouracil and is well tolerated The initial daily dose is 150 mg, divided in three or four fractional doses given at regular intervals The maintenance dose is fixed at 75 or 50 mg, divided into two fractional doses The daily dose can be reduced to 25 or 50 mg at a later date and is maintained for six months or longer, provided no toxic symptoms appear and the leukocytic formula is normal Leukocyte counts are made at frequent intervals The basal metabolism is determined frequently to prevent myxedema or recurrence of hyperthyroidism Propylthiouracil, as the only medical treatment, is indicated in (1) cases of moderate hyperthyroidism with goiter of moderate size and without compression of the trachea, (2) when the operation is contraindicated, (3) in adolescents, in the elder patient and in patients with heart diseases and (4) when a patient refuses operation Surgical therapy is indicated when there is intolerance to drugs, large goiter, intrathoracic goiter, toxic adenoma and goiter compressing the trachea The value of propylthiouracil, as a substitute for surgery, is not definitely established

Thallium Toxicosis —A 16 year old girl ingested, with suicidal intent, a rat poison preparation containing 2 per cent thallium sulfate The symptoms were those of subacute poisoning, with pronounced weakness and progressive loss of muscle power of the legs She was given 2,3 dimercaptopropanol (BAL) in daily doses of 300 mg and received a total of 2 85 Gm in thirteen days The patient made a complete recovery This is the first case of thallium poisoning in which BAL was administered

Archives Françaises de Pédiatrie, Paris

6 441-560 (No 5) 1949

Causes of Failure of Streptomycin Therapy of Tuberculous Meningitis in Children R Debre, H E Brissaud, P Mozziconacci and others —p 441

Oculocephalic Nystagmus and Mental Deficiency as Encephalic Syndrome Following Whooping Cough M Schachter —p 467

Intoxication Due to Ingestion of Cicuta Virosa D P R Keizer —p 471

*Q Fever (Rickettsia Burneti) in Children Γ Thelin and A Vogt —p 474

Q Fever in Children —Thelin and Vogt report 2 cases of Q fever in 2 sisters, aged 6½ and 14 years, who were admitted to the Pediatric Clinic of the City of Geneva The girls lived with their parents in the city and did not have any contact with workers in slaughterhouses, farms or dairies The patients' father was a merchant who received merchandise from the United States packed in straw, which could have been the source of the infection Both patients had a temperature of 102 2 F with asthenia and fatigue They did not have abdominal pain or diarrhea and did not present any rash or adenopathy The younger girl had a severe headache, vomited and had pains in the neck There was stiffness of the neck for a few hours, but Kernig's, Lasegue's and Brudzinski's signs were absent Respiration was somewhat labored, and roentgenoscopy showed the hilar shadow to be moderately increased on both sides The blood cell count revealed leukocytosis with neutrophilia Acetone was present in the urine Defervescence took place within two days after the administration of phenylsemicarbazide (cryogenine) There was no cough or expectoration The complement fixation was positive for Q fever in both patients These 2 cases illustrate the protean clinical picture of the infection with Rickettsia burnetii, characterized by a scarcity of cutaneous manifestations, by its meningeal and peculiar pulmonary symptoms, its benign course and specific serologic reaction in the absence of a positive Weil-Felix reaction The importance of the laboratory diagnosis is emphasized Q fever is primarily a disease of adults, only few cases in children have been reported

Berliner medizinische Zeitschrift

1 37-72 (Nov 15) 1949 Partial Index

New Aspects of Therapy of Diseases of Blood H Schulten —p 38
*Early Clinical Diagnosis of Rickets R Hess —p 46
Paralysis of Abducens During Peridural Anesthesia E Stenger —p 48

Early Clinical Diagnosis of Rickets —According to Hess most textbooks maintain that rickets usually makes its first appearance between the third and fourth months of life, at which time the diagnosis is based on the presence of craniotabes and the rachitic rosary Thickening of the epiphyses is sometimes mentioned incidentally The author shows that by palpating for the double malleolus (doubling of the epiphysis of the internal malleolus at the lower end of the tibia) one can ascertain the presence of rickets early even during the first month of life This was mentioned as a sign of rickets by Marfan, and its rachitic character has been demonstrated in pathologic studies carried out by Giese Since the rachitic disturbances underlying this doubling of the epiphysis must exist before this sign becomes evident, the author suggests that prophylaxis for rickets should begin during the prenatal period

Giornale di Clinica Medica, Parma

30 857-932 (Nov) 1949 Partial Index

*Familial Hemochromatosis with Symptoms of Hypoadrenalism G Capretti and W Telò —p 857
Vitamin B_1 in Cardiovascular Diseases M Falzoi and U Arduini —p 902

Familial Hemochromatosis —Capretti and Telo report two brothers and two sisters of a family of normal parents and of six children. The 4 patients presented a uniform bronze pigmentation of the skin, of the type of hemochromatosis and hepatosplenomegaly There was no diabetes or liver cirrhosis The genitalia were normal except for local hyperpigmentation The duration of the disease varied from two to 10 years The patients complained of fatigue, loss of muscle power and asthenia One of the sisters, a multipara, exhibited symptoms of struma ovarii and adrenal dysfunction Hemochromatosis is an endocrine dysfunction originating in an embryonal lability of one or more endocrine glands In late adult life, and rarely in youth, the predisposed tissues become the seat of a pigmented sclerosis with infiltration of the skin with melanin

Medizinische Klinik, Munich

44 1525-1556 (Dec. 2) 1949 Partial Index

Therapeutic Action of Salicylamide O Wieland —p 1530
Nitrogen Mustard in Therapy of Polycythemia Vera W Sperlich —p 1533
Observations on Infectious Nephritis J A Laberke —p 1536
Etiology of Inguinal Hernia H J Lauber —p 1538
*Pharyngeal Tonsil (Adenoids) in Relation to Disease of Ear, Nose and Air Passages W Kustner —p 1540

Adenoids and Diseases of Ear, Nose and Air Passages —Kustner comments on the high incidence of inflammation and suppurations of the middle ear in children and suggests that the location of the adenoid tissue (pharyngeal tonsil) might be responsible for this He regards removal of the adenoid tissue of the nasopharynx as a prophylactic measure against suppurations of the middle ear Removal counteracts stasis of secretions and restores the permeability of the nose and of the eustachian tubes, and thereby insures normal ventilation of these structures and of the middle ear A large pharyngeal tonsil impairs nasal breathing and produces a state similar to that which exists in acute coryza This impairs the organ of smell and taste, and as a result, appetite and enjoyment of food become impaired. This may explain why some children eat poorly, which in turn has an unfavorable effect on growth This is another argument in favor of the removal of the adenoid tissue. Often when the adenoids (pharyngeal tonsil) are removed, the physician at the same time removes the palatine tonsils He does not regard this as justified since the ordinary hypertrophy of the palatine tonsils is not as harmful as some believe When nasal breathing is impaired, hypertrophy of the pharyngeal tonsil (adenoids) is the decisive factor, although it may be overlooked and the visible palatine tonsils may be regarded as the offensive factor He advocates that in children the adenoids be removed and the palatine tonsils be left intact, because the hypertrophy of the latter frequently is alleviated after normal nasal breathing has been restored.

Nederlandsch Tijdschrift v Geneeskunde, Amsterdam

93 3937-4008 (Nov 19) 1949 Partial Index

Sensitivity to Insulin G H W Jordans —p 3948
Results of Streptomycin Therapy of Tuberculous Meningitis 28 Cases J E Minkenhof —p 3962
Apoplexy Cerebral Hemorrhage Thrombosis Embolism and Vascular Obstruction A Verjaal —p 3965
*Streptomycin in Urogenital Tuberculosis J B Mullers —p 3970

Streptomycin in Urogenital Tuberculosis —Mullers describes bacteriologic studies on 7 patients with inoperable urogenital tuberculosis treated with streptomycin At the end of a year 6 had positive bacteriologic reactions, although the reactions in 2 had been temporarily negative. He concludes that streptomycin is of little value in inoperable conditions of urogenital tuberculosis and that operable conditions should still be treated surgically

Oncologia, Basel

2 131-192 (No 3) 1949 Partial Index

*Tumors of Parotid Region Observations in 64 Cases in Zurich C Botsztejn —p 133
Urethane Therapy of Mycosis Fungoides 4 Cases E Musso —p 149

Tumors of Parotid Region —Botsztejn reviews observations on 64 patients with parotid tumors treated at the Center for Irradiation Therapy in Zurich between 1920 and 1948 He shows that it is difficult to evaluate the character of a parotid lesion on the basis of a histologic picture The adenomas, although their histologic structure may give the impression of benignity, should be regarded as semimalignant The age of the tumor probably explains the variable histologic picture. The so-called cylindroma is really an adenocarcinoma cylindromatosum and as such is definitely malignant, although it has a slightly better prognosis than the other primary carcinomas of the gland The so-called mixed tumors should be designated as pseudo mixed tumors, because the majority of pathologists are now of the opinion that they are purely epithelial tumors The pseudo-mixed tumors after a long period may show a malignant character They may also degenerate into sarcomas Twenty-six of the tumors were benign or semimalignant, and 38 were malignant Irradiation by roentgen or radium rays is the therapy of choice for parotid tumors An exploratory excision is made in order to ascertain the nature of the tumor This excision can be extensive, but care should be taken not to injure the facial nerve The region of the tumor should be irradiated with at least 4 000 r in the course of twenty days Some comparatively large tumors which are not sensitive to irradiation, require 6,000 r in a period of thirty days

Policlinico, Med Sect, Rome

56 169-212 (Sept-Oct.) 1949 Partial Index

Complex Constitutional and Hereditary Microcythemia with Abnormal Erythrocytes E Silvestroni and I Bianco —p 169
*Studies of Iodemia in Heart Insufficiency L Roversi —p 187
Determination of Haptoglobinemia in Pulmonary Tuberculosis M Ghione and E Ciamillo —p 209

Studies on Blood Iodine in Heart Insufficiency —Roversi determined the total and the organic and the inorganic fraction of blood iodine of 8 patients with cardiac insufficiency Evaluation was made before and after intravenous administration of 75 mg of vitamin B_1 during three consecutive days The total iodine content was increased This increase involved only the inorganic fraction while the organic fraction remained somewhat below its normal value This modification reached its peak in cases of heart insufficiency with edema and renal insufficiency After the administration of 75 mg of thiamine, the hyperiodemia decreases in the inorganic fraction while the organic fraction tends toward normal values The changes described are probably due to the breaking down of the mechanism which regulates absorption and elimination of iodine, because of impaired renal function In the normal state the kidney eliminates 50 per cent of the superfluous iodine Accumulation of the absorbed iodine increases the total iodine content. Diminution in the organic fraction of [illegible] be ascr[illegible] to the impairment of functional activity [illegible] iodine-el[illegible]ng organ, owing to impaired circulation The inorganic hyperiodemia causes a reduction in the organic fraction because of inhibition of the secretory activity of the thyroid Thiamine reduces the acid metabolic substance, improves acidosis and corrects the iodine level in the blood The author advocates the use of vitamin B_1 together with cardiokinetic drugs in cardiac insufficiency

Policlinico (Pract Sect), Rome

56 1341-1376 (Nov 7) 1949 **Partial Index**

Primary Atypical Pneumonia Critical Review of Literature G Sciortino—p 1341
*Effect of Electric Shock in Obstinate, Painful Syndromes C Catalano Nobili—p 1348
Echinococcus of Spleen Indication for Splenectomy G Zannini—p 1352

Electric Shock Therapy for Intractable Pain—Catalano-Nobili reports on 27 patients with intractable pain Twenty patients were drug addicts with refractory pain due to thrombophlebitis, ununited fractures, causalgia, neuralgia, painful scars and visceral adhesions One patient had neuralgia of the fifth cranial nerve, 4 had a pain syndrome of visceral origin and 2 had pain caused by tabes dorsalis In all instances the pain syndrome was combined with the psychic syndrome which frequently was caused or aggravated by the former The psychic syndrome in itself suggested electroshock therapy to alter the habit in the drug addicts and to relieve the anxiety and depression in the others Treatment consisted of electrically induced shock four times daily in two sessions, in most cases under barbiturate anesthesia As a rule, treatment for two and a half days with 10 shock treatments was sufficient to obtain a syndrome of prolonged absolute loss of consciousness ("annihilation"), resulting in an interruption of the pain and of the associated psychopathologic manifestations Repeated successive applications at short intervals were effective, while single applications at long intervals were ineffective He believes that the syndrome of "annihilation" consists in some kind of effect on the afferent nerves because the sensations, although perceived, have no longer the characteristics of intolerability, of deep and torturing affectivity The thalamus probably plays an important role in the causation of the pain syndrome The effect of the electroshock therapy consists in the removal of the thalamic component of the syndrome, and in lowering of the threshold of the psychic pain perception

Praxis, Bern

38 1065-1084 (Dec 1) 1949

*Atypical Pneumonia and Queensland Fever New Data in Relation with Retrospective Study of Complement Deviation Reaction with Rickettsia Burnetii B Rilliet—p 1065
Therapeutic Application of Injections of Irgapyrin (Pyrazolone Derivative) H R Stettbacher—p 1069
Medical Service in Russia J Deletra and M Maurel—p 1072

Atypical Pneumonia and Queensland Fever—Rilliet reports on 85 patients admitted to the Cantonal Hospital of Geneva, Switzerland, from January 1946 to June 1949 and in whom atypical pneumonia was suspected A control examination of the blood was performed on 55 of the 85 patients three months to three and a half years after the acute illness A positive complement deviation reaction with Rickettsia burnetii was observed in 39 of the 55 patients Q fever was thus established in about three quarters of the cases in which a tentative diagnosis of atypical pneumonia was made Certain so-called virus pneumonias, miliary virus pneumonia with positive cold agglutination reaction, may depend etiologically on Q fever A positive complement deviation reaction (Q fever) was observed in 2 of 4 patients with a positive cold agglutination (their titer being above 1 256 during the course of the disease) Definite clinical characteristics of Q fever are not readily recognizable The onset of Q fever is more violent than that of virus pneumonias It is associated with chills, rise of temperature, headache and early sweating The sputum is likely to be blood stained, there may be a strong deviation of neutrophils to the left, while hepatorenal complication may be absent Characteristic roentgenologic pulmonary changes are rare A parenchymatous, somewhat dense and completely peripheral shadow in the absence of a visible hilar reaction may aid in the diagnosis, provided fluoroscopy is performed at a favorable moment The rural communities around Geneva showed a higher incidence of Q fever than the city itself, animals or their excreta mixed with dust seem to be the principal vectors of the disease

Wiener klinische Wochenschrift, Vienna

61 831-846 (Dec. 2) 1949 **Partial Index**

Pathologic Anatomy of Brain Abscess H Chiari—p 831
Contribution to Early Diagnosis of Primary Carcinoma of Lung E Dissmann—p 833
*Contribution to Problem of So-Called Late Diarrhea After Vagotomy B Thurnher and M Wenzl—p 837

Late Diarrhea After Vagotomy—According to Thurnher and Wenzl diarrhea is one of the most frequent sequela of vagotomy for peptic ulcer In rare instance severe diarrhea develops one or two months after the operation The follow-up of 27 patients operated on one to one and a half years previously revealed normal bowel activity in 18, three to four daily movements of soft feces in 7 and severe diarrhea in 4 Delayed evacuation of the stomach for more than five hours was observed in 6 patients, while retention for more than 24 hours was present in 3 Roentgenologic examination revealed an abnormally increased caliber of the duodenal and jejunal loops, the contrast medium reaching the colon only after five to six hours, passage of the fecal current through the colon was normal The contrast medium remained in the cecum and in the ascending colon for a normal length of time in the patients with diarrhea, while the passage through the transverse and descending colon was definitely accelerated Passage through the small intestine was accelerated in the 4 patients with severe diarrhea, the contrast medium reaching the colon within two hours Abnormal filling, collection of gas and variations in caliber suggested disturbances of secretion, absorption and tonus These observations suggest that there exist two fundamentally different types of late diarrhea after vagotomy One type is characterized by an almost normal or even retarded passage through the small intestine and an accelerated transit through the colon, which may be interpreted as a manifestation of a decrease in the function of vagal regulation The other type may be interpreted as enterocolitis due to lesions of the intestinal wall caused by gastric retention The incidence of these latter cases is not high They constitute an argument for gastric resection when other therapy fails

Wiener medizinische Wochenschrift, Vienna

99 527-550 (Nov 19) 1949 **Partial Index**

Diagnosis of Obstacle to Delivery H Heidler—p 527
Evaluation of Therapeutic Methods in Arterial Diseases of Lower Extremities H Steindl—p 530
*Increased Frequency of Penicillin Resistant Pathogenic Cocci K Berger—p 536

Penicillin-Resistant Pathogenic Cocci—Berger observed an increased frequency of penicillin-resistant strains of pathogenic cocci in the Staphylococcus aureus group only, but not in gonococci, pneumococci or hemolytic streptococci Only 2 of 411 Staph aureus strains (0 5 per cent) grown from diseased tissue proved resistant to penicillin during the period November 1946 to March 1947, while 8 of 248 Staph aureus strains (3.2 per cent) proved resistant to penicillin during the same months in 1947-1948 and 44 of 227 strains (19 4 per cent) in 1948-1949 Recently the ratio of penicillin-resistant strains of Staph aureus reached 40 per cent in one hospital The increased frequency of penicillin-resistant staphylococci is associated with the progressively increased therapeutic use of penicillin and with the fact that hospitals as centers of penicillin therapy become "breeding places" of penicillin-resistant strains of staphylococci, since penicillin therapy reduces only the sources of dissemination of strains susceptible to penicillin, but not those of the penicillin-resistant strains There is a steady increase of penicillin-resistant staphylococci in new infections occurring in these hospitals, and the number of wounds which become contaminated secondarily with penicillin-resistant strains is likewise on the increase, with the resultant increased dissemination of the resistant strains In contrast to gonococci, pneumococci and hemolytic streptococci, the increase in penicillin resistant staphylococci occurs because of the existence of strains of staphylococci which are naturally resistant to penicillin

Book Notices

The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated

Medical Latin and Greek. By Mignonette Spilman Ph D Professor of Classics University of Utah Second edition Paper $3 25 Pp 139 The Author K. H 316 University of Utah Salt Lake City 1 1949

This well planned book will be a valuable tool in the hands of diligent and persevering students of medicine who can devote to its study the time and effort needed to master its contents Medical nomenclature, and many English words as well, carry new meaning when the student has even a bowing acquaintance with Latin and Greek

About three fifths of the book is devoted to Latin and the remainder to Greek Each section is developed in the same general way The plan of instruction is necessarily simple. Three fourths of the Latin section, for example, is devoted to vocabulary study, the remainder to pronunciation, declensions, verbs, nouns, adjectives, prefixes, suffixes and phrases Special attention is given to the Greek alphabet and to vowel and consonant changes The vocabularies, which show Latin and Greek sources, include numerous illustrative examples of the English uses of the words and of their medical applications Spot checks detected none of the errors that might be expected in a new edition

This book contains more concentrated information than the average student will master, especially if self instruction is necessary It is regrettable that planographing was employed, since its limited type forms do not provide a suitable contrast between the English and foreign words The result is a page that is difficult to read.

Gynecology & Gynecologic Nursing By Norman F Miller M D Professor of Obstetrics and Gynecology University of Michigan Medical School and Betty Hyde R N Supervisor of the Gynecology Wards University of Michigan Medical School Ann Arbor Mich With Chapters on the Gynecology Operating Room by Molly Kowal R N and on the Psychosomatic Approach in Gynecology by Sprague Gardiner M D Assistant in Obstetrics and Gynecology University of Indiana Medical School Indianapolis Second edition Cloth Price $4 25 Pp 485 with 240 illustrations W B Saunders Company 218 W Washington Sq Philadelphia 5 7 Grape St Shaftesbury Ave London W C 2 1949

This edition maintains the high standards established by the first edition The material is arranged in a logical manner, so that the nurse is familiarized with the anatomy and the physiology of the reproductive organs before she embarks on their abnormalities Mechanical disturbances, including childbirth injuries and relaxations, infections, neoplasms and some pregnancy complications, are described in separate sections Nursing procedures peculiar to gynecology are considered in detail in a separate chapter An appendix contains descriptions of specialized procedures

The style is interesting and the text profusely illustrated with pen and ink sketches The dual authorship of an outstanding gynecologist and an equally well trained nurse educator has resulted in the proper emphasis on nursing education This textbook can be recommended highly for use in nursing curricula

Manual of Pharmaceutical Law By William Pettit Lecturer in Pharmaceutical Jurisprudence University of Pittsburgh Cloth $2.75 Pp 170 with 1 illustration The Macmillan Company 60 5th Ave New York 11 1949

The author presents the legal aspects of the practice of pharmacy However, as in the case of all statutes, revision is almost a continuous process The utilization of such a manual as a teaching textbook would require many supplements or, what is even more significant, the authentication of all rules and regulations which the various legislative divisions of government are privileged to promulgate.

The value of the book might be enhanced if it more clearly portrayed the responsibilities of the pharmacist to the patient as well as to the members of the allied professions The text overemphasizes the complexity of law and its procedures without giving due attention to the simplicity of the ethical principles which underlie the advantageous practice of the profession

A Philosophy of Life By Richard N Bender Cloth $3 75 Pp 250 Philosophical Library Inc 15 E 40th St New York 16 1949

From its title, this book might be anything from a study of ethics to a discussion of the nature of life. However, the announcement on the cover states "This is a new kind of book It presupposes no formal training in philosophy, requiring only that the reader be interested in such problems as the nature and significance of human personality, the kind of God in whom a rational man can believe and the pathway to human happiness" It is essentially a textbook in philosophy

Every young man and woman who has an enquiring mind and seeks wisdom asks "What am I? What is matter? What is the universe? Did it begin or has it existed forever? What is the relation between my mind and my body? Are they one thing or two? What is the explanation of the coexistence of good and evil? Is there a maker, called God, and, if so, who made God and what is his nature? Did he make both good and evil and, if so, why? What is good and what is evil?

It is to answer these questions, as well as the incomplete knowledge of the present time permits, that this book was prepared It is written in simple nontechnical language, with a pleasant style and presents fairly the arguments for and against the usual conclusions I have seen no other book quite like it Dr Bender's statement on the value of personality on page 200 and his criticism of existentialism, the doctrine that whatever is is right, are especially clear and concise

Some chapters, of course are better than others The first six are particularly fine The seventh chapter would be improved and made more complete if it embodied something of Sir Arthur Keith's views on the evolution of man, those of Alfred Machin in "What is Man?" and those of Bertrand Russell in "Authority and the Individual" These authors give a clear, rational explanation of what sin and goodness are and how they have originated Elsewhere in the book the author has expressed views in harmony with their conclusions but not in the seventh chapter which discusses the paradox of good and evil Chapter 8, on "Knowing God," appears to be the weakest

In a book of this kind, covering such a large field, it is impossible to avoid some errors and omissions One omission, for example, is that of Stalin's name on page 185, where Hitler and Mussolini are cited as upholding the concept that might makes right.

An error which was particularly noted, and a common one, is the treatment of scientific laws as if they in some way controlled phenomena and made things happen For example, on page 116 is the statement "There is evidence that God is good and that the laws which he has set into operation operate for the expansion of personality" Now while it is not improbable that personality is developing, so far as is known laws do not cause the development A scientific law never operates It does no work It is simply a concise and accurate statement of what has been found to happen in certain circumstances, at certain places and at certain times A law in science is not an enactment of will of either a people or a person It is not a command, although it is often so presented, as, for example, in the ten commandments The ten commandments forbid certain acts which have been found by long experience to be antisocial and to produce general unhappiness and commend other actions having a contrary effect. Some man "in the dark backward and abysm of time," some Egyptian priest, Moses for example, or some Babylonian king, Hammurabi, perceived their action on society, gave them the form of commands and ascribed them to God

The principal weakness of the book is that it does not sufficiently emphasize the supreme importance of the creative powers of the individual man and woman For it is this power of creation by gifted men and women that has caused the development of civilization The main difference between men in the old stone age and at the present is in this power Individuals and governments may be judged, and their relative positions in evolutionary development may be assigned, by the amount of creative power which they have in arts, literature, science and ethics It is by this power of individual creation man partakes of the nature of the Creator To foster this power should be the main end of governments and creeds as Russell so clearly sets forth

Marihuana in Latin America The Threat It Constitutes By Pablo Osvaldo Wolff, M D , *Ph D* M A Member of Expert Committee on Habit Forming Drugs of the World Health Organization Buenos Aires Translated from the Spanish edition Paper Price $1 50 Pp 56 Washington Institute of Medicine 1708 Massachusetts Ave N W Washington D C 1949

Following a complimentary foreword by the Honorable Harry J Anslinger, United States Commissioner of Narcotics, the main theme of Dr Wolff's treatise is expressed in these words "Not all of those who are under the effects of a narcotic, like opiates, are persons afflicted by vice, as it has been explained on other occasions In contrast, the use of marihuana is always an abuse and a vice in the strictest sense of the word So far as this drug is concerned, there is no medical indication whatsoever that will justify its use in the present day and age, as is the case with opiates and also, up to a certain point, with cocaine, although increasingly broad limitations already are being applied to the latter, restricting its use in operative medicine" "I repeat my initial warning there is not, as is the case with the opiates, any reason, any excuse, any indication for its use It is always an abuse, dangerous to the individual and to the race It is not yet too late for us to recognize the menace which appears to be drawing near" On the intervening pages, Dr Wolff discusses the frightening spread of the use of marihuana throughout each of the Latin American countries As Dr Wolff points out, this spread also constitutes a threat to the United States Certain medicolegal problems raised will be of interest to persons concerned with law enforcement. Generally speaking, the book is well suited to reading by the lay public and contains much of educational value in largely nontechnical language

Practical Orthoptics in the Treatment of Squint (and Other Anomalies of Binocular Vision) By T Keith Lyle M A , M D M Chir , Surgeon and Medical Officer in Charge of Orthoptic Dept At the Westminster Branch of the Moorfields, London and Sylvia Jackson S R N D B O With the Assistance of Lorna Billinghurst D B O Orthoptist Addenbrooke s Hospital Cambridge Eng and Diana Salsbury D B O Senior Orthoptist, Westminster Branch of Moorfields Third edition Cloth Price $8 50 Pp 271, with 152 illustrations The Blakiston Company Division of Doubleday & Company, Inc , 1012 Walnut St Philadelphia 5 1949

This well known textbook on orthoptics shows plainly the great amount of work entailed in its revision Large sections have been rewritten "in view of the advances that have been made in orthoptic treatment and in the treatment of strabismus, generally during the past seven years" It is well written and easily readable The excellent selection of illustrations and diagrams heighten its interest The photographs of instruments with detailed description are especially valuable Included is an excellent glossary of terms and complete index

The subject is extremely well covered The chapters on Anomalous Retinal Correspondence and Acquired Paralytic Strabismus are of unusual merit This book fills an important place in the study of orthoptics and correlates the relationship of the physician to the orthoptist in the management of strabismus This edition has been expanded to meet the increased requirements of the British Board of Orthoptics for diplomas, which now cover two full years of study instead of one year

Ophthalmic Medicine By James Hamilton Doggart M A M D F R C S Surgeon, Moorfields Hospital London *Cloth $8 Pp 329,* with 115 illustrations The Blakiston Company Division of Doubleday & Company, Inc , 1012 Walnut St Philadelphia 5 [1949]

Having been asked to either edit Foster-Moore's famous "Medical Ophthalmology" or write a new book along similar lines, Doggart chose the latter course and a new title. His work is an up-to-date, excellently prepared and illustrated short textbook on medical ophthalmology It contains ophthalmologic material arranged according to the systemic disease or localized extraocular disease which constitutes the cause or at least forms the background for the respective ocular disease The first four chapters of the book are devoted to ophthalmologic history taking, methods of examination and symptomatology From then on, each chapter is devoted to a discussion of the eye manifestations of a single systemic disease or of a characteristic group of such disease Typical chapter headings, therefore, are allergy, syphilis, gonorrhea, tuberculosis, focal infection, virus infections and fungus infections Chapter 9 is entitled "Inflammatory Syndromes" and deals with sarcoidosis, keratoconjunctivitis sicca, Reiter's disease, ophthalmia lenta, dermatomyositis, Behcet's sysmptom complex, Vogt-Koyanagi syndrome and Stevens-Johnson syndrome Throughout the book the author emphasizes "how intimately the eye is linked, not only with adjacent structures but also with remote parts of the body"

Most references to systemic, as well as to ocular diseases, are too brief to be fully understood without "pre-existing' knowledge of internal medicine and ophthalmology acquired through the conventional textbooks The new "Ophthalmic Medicine" is clearly indicative of the author's vast clinical experience and definite views on many ophthalmologic matters While these views, in some instances, may seem somewhat one sided or even extreme, the ophthalmologic wisdom emanating from most of the text and its lucid, lively and often humorous style will do much to satisfy most readers

Diseases of the Nervous System Described for Practitioners and Students By F M R Walshe, M D D Sc , F R S Physician in charge of the Neurological *Department University* College Hospital London Sixth edition Cloth $5 Pp 359 with 60 illustrations The Williams & Wilkins Co Mt Royal & Guilford Aves Baltimore 2 1949

This book is intended for the student and general practitioner Its success is indicated by the necessity for six editions in the short space of eight years The author has described the diagnosis and treatment of the major neurologic syndromes in a clear, concise fashion with a minimum of controversial material The book is not intended for the specialist and does not contain detailed information about rare syndromes

The book is divided into two major sections The first contains a discussion of the principles of neurologic diagnosis with summary descriptions of the characteristic symptom complexes of diseases of the nervous system This is correlated with a brief discussion of relevant anatomy and physiology The second section deals with the common neurologic diseases An attempt is made to apportion space to them according to their relative importance. Many of the rarer syndromes are not mentioned, and other diseases are treated briefly The necessity for this in a brief and elementary textbook is obvious, and the author's choice of pertinent material is good One might question the advisability of including the short chapter on the diagnosis of the neuroses in a simple textbook

The text is well adapted to the use of the medical student and general practitioner It contains a simple and able description of the more common neurologic syndromes with a discussion of diagnostic procedure and treatment possible in general practice

Physikalische Chemie in Medizin und Biologie Von Dr phil W Bladergroen Geleitwort von Prof Dr M Roch Direktor der medizinischen Klinik der Universität Genf Second edition. Cloth Price 45 Swiss francs Pp 675 with 193 illustrations B Wepf & Co , Verlag, Eisengasse 5, Basel 1949

The book is couched in the simplest of scientific German and can be followed with facility by any medical student or physician who has a reasonably fair acquaintance with the language. The thought is clear, and the sentences are short and not involved The great value of the book lies in the wealth of correlation between concepts of physical chemistry on the one hand, and biology in general and medicine in particular on the other The author's aim is to present the biologic aspects of physical chemistry in a way rarely used by writers on this subject He employs with great success the subject matter of biochemistry, physiology and pathology as a vehicle for his physical chemistry The result is a book in which almost every explanation, illustration or application of theories basic in physical chemistry is taken from those topics in which the medical student or the physician has already acquired a useful body of knowledge

The first few chapters tend to be introductory and explanatory of fundamentals, such as molecules, atoms, ions, electrons, neutrons, isotopes and their therapeutic applications, radiant energy, electrovalency, optical activity and catalysis The succeeding chapters are devoted to various biologic systems In the discussion of the biologic milieu, namely, water, the author emphasizes the physicochemical concepts relative to this fluid, such as the theories of solution, electrolytic dissociation, hydrogen ion concentration, osmotic pressure, hydrolysis and the modern viewpoints on acids and bases Blood is treated in relation to colloidal systems, viscosity, hydrogen ion concentration, acid-base equilibrium, acidosis and alkalosis, the relation of the respiratory center to blood p_H, coagulation and sedimentation rate

Since surface phenomena play a major role in biochemical activities, proper stress is laid on surface tension, the phase rule, colloids, monomolecular films, adsorption, electrophoresis, chromatographic adsorption and chromatographic analysis The structure of living substance gives the author the opportunity of discussing the structure of protoplasm, carbohydrates, lipids, proteins nucleoproteins, viruses, enzymes and coenzymes, biologic oxidations, cell membranes, the Donnan equilibrium, diffusion, permeability, edema and the problem of narcosis Intermediate metabolism, as well as muscle contraction, glycolysis, phosphorylation and the significance of trace elements

The reader in perusing the book is impressed with the viewpoint that the biologic organism is a very dynamic entity operating under the laws of physics and chemistry The book dispels the idea so prevalent that physical chemistry is not for the medical man He will be agreeably surprised to learn that physical chemistry, as dished up attractively by the author, is not an abstract or abstruse subject. As a matter of fact, rightly presented as the subject matter is in this book, it offers a great deal of surprisingly good information and useful applications concerning the many physical and chemical mechanisms involved in the physiology and pathology of life processes

Textbook of Bacteriology By C H Browning M D LL D D P H Gardiner Professor of Bacteriology University of Glasgow and T J Mackie C B.E M D LL D Professor of Bacteriology University of Edinburgh. Eleventh edition of Muir & Ritchie s 'Manual Cloth $12 75 Pp 907 with 225 illustrations Oxford University Press 114 Fifth Ave New York 11 Amen House Warwick Sq London E C 4 1949

The subject matter of bacteriology is vast and necessarily specialized Today numerous modern textbooks are available to satisfy the needs of the varied workers in this field whatever be their point of orientation Browning and Mackie have written primarily from the point of view that micro-organisms can cause disease to man and the animals that surround him

After introductory sections on the morphology, physiology and immunology of bacteria, pathogenic species of bacteria within the various genera are presented so that the disease process, its diagnosis in the laboratory, and its immunologic measures are given both in terms of basic factual material and by citation of published work. A similar treatment is accorded sections on the Rickettsia and Bartonella, the Spirochetes, viruses, pathogenic fungi and Protozoa the Leishmania and Toxoplasma, which follow Sections on chemotherapy the normal flora of skin and mucous membranes, and the bacteriology of air, water and sewage complete the volume. In order to combine theory with practice all the sections are interspersed with practical laboratory instructions (often in small type) for demonstrating the various phenomena described, and an appendix of almost a hundred pages gives the basic technics necessary to the laboratory worker A useful feature is a large bibliography at the end of the volume The writing of the authors is lucid and easily read Nomenclature is varied and in most instances includes the names adopted by Bergey's "Manual of Determinative Bacteriology"

In a sense, the text of Browning and Mackie has grown up with the subject. First published fifty-three years ago as Muir and Ritchie's "Manual of Bacteriology," it passed through ten editions before the present authors revised the work In 1897 the primary outlook of bacteriology was that bacteria and other micro organisms are capable of causing disease. The concepts of pathogenesis and parasitism important in nurturing the babe, could not contain it Investigators soon found micro-organisms intimately interrelated with all the processes of the globe

Some of this classic outlook still pervades this book. An introductory chapter on the physiology of bacteria contains little of the modern detailed knowledge of how bacteria function, how they metabolize or respire Theoretic considerations of the principles involved and their development play minor roles to the elaboration of detail In this sense the book is more a manual than a textbook. Perhaps these are compromises resulting from the limitations of space

However considering the scope of the book, which covers the field of pathogenic micro-organisms rather than that of pathogenic bacteriology, as the title indicates, the authors have been, to a great extent, successful They have produced a working textbook, up to-date in its data and of practical use in the laboratory The medical student, the practitioner and the laboratory worker will benefit from use of it

There were a number of minor errors in the text Autoclaving temperature is given as 30 pounds per square inch equalling 121 5 C instead of 15 pounds (page 28), and the minimum lethal dose for diphtheria toxin is incorrectly defined on page 83 (a guinea pig is killed in five days instead of four)

Medical Clinics on Bone Diseases A Text and Atlas By I Snapper M D Physician and Director of Medical Education the Mount Sinai Hospital New York. Second edition Cloth $20 Pp 308 with 46 plates Interscience Publishers Inc. 215 4th Ave New York 3 2a Southampton Row London W C 1 1949

This edition maintains the high standards achieved by the first edition published in 1943 and reviewed favorably in THE JOURNAL Because of changing concepts of disease of the skeletal system, the author has found it necessary to completely revise the current edition The chapter on hyperparathyroidism has been subdivided into introductory remarks, Recklinghausen's bone disease, renal and gastrointestinal manifestations and treatment and summary New chapters include those on osteoporosis, osteoporosis circumscripta cranii, leontiasis ossea, neurofibromatosis of bone and the skeletal lesions of lymphosarcoma, Hodgkin's disease and hemolytic anemias

The manner of presentation remains essentially the same as in the previous edition The concise historical introductions and the authoritative clinical discussions add greatly to the usefulness of the book, as do the sections on differential diagnosis A short but adequate description of the underlying pathologic process and the resultant roentgenologic changes are an integral part of the work The references included at the end of the sections are up-to date and show careful discretion on the part of the author The illustrations in general and the numerous photomicrographs and roentgenograms are excellently reproduced, being well chosen and unusually graphic It is regrettable that technical reasons necessitated placing some of the plates apart from the subject matter, although the quality of the photographic reproductions compensates in part for this undesirable feature The book is recommended to all physicians interested in disease of the skeletal system

May's Manual of the Diseases of the Eye for Students and General Practitioners Edited by Charles A Perera M D Assistant Clinical Professor College of Physicians and Surgeons Columbia University New York Twentieth edition Cloth $5 Pp 512 with 378 illustrations Williams & Wilkins Company Mt. Royal & Guilford Aves Baltimore 2 1949

For half a century this manual has served the medical student and the general practitioner of the United States and of many foreign countries as a trustworthy, informative and "friendly" guide in ophthalmologic matters In this edition of this miniature textbook of ophthalmology, many portions of the work have been rewritten and reorganized, without any essential deviations from Dr May s original conception Credit for the success and popularity of the more recent editions goes to Dr Charles A Perera whose unceasing efforts are clearly revealed in the new edition Although many of the old illustrations have been replaced with new ones, in accuracy as well as in lucidity the illustrative material lags behind the text

Clinical Cystoscopy Technic Procedures Diagnosis Treatment. Volumes I and II By Lowrain E McCrea M D F A.C S F I C S Clinical Professor of Urology Temple University Medical School Philadelphia Pa Drawings by B Engle Shaffer Second edition Cloth. Price $28 the set Pp 585 587 1152 with 742 illustrations F A Davis Company 1914 16 Cherry St Philadelphia 3 1949

These two volumes are outstanding with respect to their subject matter and the beauty of illustration The contribution to clinical cystoscopy goes beyond the pattern set by previous authors and publishers The completeness of the index and bibliography represents much effort in the selection of pertinent material and little if anything of significance is omitted It is only in recent years that such beauty and accuracy of illustration has been possible Careful perusal of selected chapters leads one to the conclusion that no other publication affords as complete and accurate presentation of cystoscopic technic and diagnosis

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST

TREATMENT OF HICCUP

To the Editor —After hearing that glyceryl trinitrate would control hiccup, I tried it on myself and on several patients In each case, 1/200 to 1/150 grains (0 3 to 0 4 mg) sublingually gave immediate relief These were simple cases of hiccup, not caused by intoxication or organic disease Is this use of the drug recognized?

I have seen 10 cc of a 25 per cent solution of nikethamide administered as one intravenous dose to patients in acute alcoholic coma Within five minutes the patient begins to sneeze, then vomits profusely, whereupon he is wide awake and alert and does not appear sick or drowsy There was no apparent respiratory stimulation Is 10 cc considered a dangerous dose in a comatose patient? P C Zanger, M D , Brooklyn

ANSWER —Glyceryl trinitrate is not generally recognized as a treatment for hiccup It is possible, however, that by producing cerebral vasodilitation, the central overstimulation of the phrenic nerve was abolished It is not possible, however, to assign a specific mechanism without additional experimental data The use of vasodilators other than the nitrites might be tried to test this hypothesis

Although nikethamide, in ordinary dosage, is primarily a medullary stimulant, large doses may stimulate higher centers and the spinal cord It has been recommended as an analeptic for the treatment of acute alcoholism The ordinary dose is 2 to 3 cc intravenously, and a dose of 10 cc can be considered excessive and may be dangerous if injected rapidly, producing convulsions and death from respiratory failure However, since nikethamide is rapidly destroyed in the body, the rate of injection is considered to be more important than the total dose in determining the severity of reactions to the drug

MIGRAINE

To the Editor —Of what benefit is nicotinic acid in daily doses of 50 mg for ten days in migraine? A patient who has had migraine for about seventeen years did not respond to antihistamine, ergot preparations or hormones Nicotinic acid brings relief for about twelve hours However, the attacks of migraine come in shorter intervals and last longer M D , Rhode Island

ANSWER —Assuming that the patient has migraine, daily administration of 50 mg of nicotinic acid should not be of any significant value Any case of true migraine which has not responded to appropriate therapy with ergotamine tartrate is statistically suspect There is a small group of patients with migraine that does not respond to ergotamine and an equally small group that appears to respond to vasodilators such as nicotinic acid It is possible that the shorter intervals and longer durations of the attacks are due to a partially abortive effect of the nicotinic acid No definite suggestions can be given with regard to further treatment of the patient without more detailed history concerning the type of attack and its possible relation to allergic, endocrine, autonomic or psychogenic factors and, especially, additional information concerning why the attacks at this time appear to be increasing in number and in duration

CORONARY THROMBOSIS

To the Editor —A man of about 40 sustained a compound comminuted fracture of the left leg three years ago, followed by thrombophlebitis of the leg and then by infarction of the base of the right lung If there has not been any recurrence of the thrombophlebitis, is it logical to assume three years later that a recent coronary thrombosis is in any way related to the original injury or the complications which immediately followed? James V Lorenz, M D , Wilkes Barre, Pa

ANSWER —There has been some controversy regarding the relationship between trauma and coronary thrombosis Most cardiologists consider that trauma is a precipitating factor in coronary occlusion only in exceptional cases, although shock may induce coronary insufficiency of severe degree, particularly in persons with some degree of coronary artery sclerosis It is not conceivable that an attack of coronary occlusion could in any way be related to an injury which occurred three years previously

AMAUROTIC IDIOCY

To the Editor —What are the chances, following the birth of a child with Tay-Sachs disease, of succeeding children being normal? Jack Sang M D , Bronx, N Y

ANSWER —Amaurotic idiocy or Tay-Sachs disease takes two forms one (infantile) is diagnosed shortly after birth, the other (juvenile) appears when the child is 6 to 8 years of age

Slome (The Genetic Basis of Amaurotic Family Idiocy, *J Genetic* **27** 363-376, 1933) made a statistical study of the infantile type from reports in the literature He gave data on the number of cases occurring among brothers and sisters in ninety-two families, among which 135 infants suffered from the disease in a total of 456 brothers and sisters One infant only was affected in sixty-five families, two were affected in seventeen families, 3 siblings had the disease in each of six families, four were affected in each of three families, and there were 6 infants with amaurotic idiocy in one family

The infantile form of the disease appears with much greater frequency among Jewish people than among Gentiles Just the opposite is true in the case of the juvenile form The frequency of the infantile form is increased further in families in which the parents are blood relatives

For a general consideration of the hereditary nature of both types of the disease, the reader is referred to the two volume work "Human Genetics" by R R Gates, published by the Macmillan Company

TOTAL ACIDITY OF GASTRIC CONTENTS

To the Editor —I have recently been unable to obtain an end point for total acidity of gastric contents With a free acidity of 50 degrees I obtain a total of 300 or 400 I have used two different batches of phenolphthalein from two reliable manufacturers I used twentieth-normal sodium hydroxide for titration What causes the difficulty? The phenolphthalein reacts with a drop of sodium hydroxide in the absence of the gastric contents M D , Pennsylvania

ANSWER —The results obtained in the preceding instance are unusual The total acidity of gastric contents uncontaminated with intestinal contents, saliva or food should not exceed the free acidity by more than 15 to 20 clinical units Furthermore, the highest free acidity that can be physiologically obtained is 160 clinical units, and this is with pure gastric juice from some hyperacid patients Thus, the free acidity and total acidity in such a specimen will be the same

There are several possibilities that may have occurred in the preceding determinations The lactic acid content of the gastric juice may have been extremely high However, to be so high as to give a total acidity of 250 to 350 clinical units higher than the free acidity is unlikely Likewise, gastric juice contaminated by intestinal contents would not give such a great difference The difficulty most probably lies in the phenolphthalein in spite of the fact that two different batches were tested and the phenolphthalein reacted to twentieth-normal sodium hydroxide, which has a p_H of approximately 12 7 This does not necessarily mean that the phenolphthalein will react at a p_H of 8.2

The method of titration that offers the least possibility of interference is to use a glass electrode p_H meter to determine the end points Electrodes with long leads are available, these are kept in the solution during the titration The end points are then taken at p_H 3 5 and 8 2, instead of using the color changes of Topfer's reagent and phenolphthalein

ARTHRITIS, FOCAL INFECTION AND BEER

To the Editor —I would like to know whether focal infection would be a more likely cause of arthritis than beer drinking What are the constituents of, and their percentages in, average beer? Are there any authentic data on the average amount which will cause a mild degree of inebriety? Charles Wolf, M D , New York

ANSWER —A query in THE JOURNAL, Aug 6, 1949, page 1191, denied that beer drinking would cause arthritis Joint swelling and pain may be symptoms of allergy, the mechanism being a deleterious antigen-antibody reaction in a tissue containing fixed antibodies, when the circulating antigen comes in contact with the immunized (or sensitized) joint tissue The antigen may be ingested but causes its greatest reactions when given by injection, for example, the joint manifestations of delayed serum sickness By analogy, the mechanism by which focal infections might produce joint inflammation is probably the same In focal infection there are variable amounts of circulating bacterial proteins arising in an infected tissue, which may find corresponding antibodies in the joints, again producing an antigen-antibody reaction with symptoms of inflammation

The average American beer is produced from 70 per cent barley malt and 30 per cent of unmalted cereals such as rice, corn grits and sometimes sugar In the brewing process the starch and other carbohydrates of the grain are changed into dextrines and maltose or malt sugar In the fermentation process the maltose by enzymatic action is changed to dextrose (glucose or grape sugar) before the yeast cell can ferment this, forming alcohol and carbonic acid gas and other substances in small amounts The sugar present in a completely fermented beer is given in the analysis as "reducible sugar, and strictly speaking this is not maltose The quantity of hops used in brewing is small less than ½ pound (0 23 Kg) per barrel (31 United States gallons, 117 3 liters), and it is practically eliminated except for the flavor and aroma. The data in the first column of the following tabulation are for the average beer now marketed, in the second column for a so-called 3 2 per cent alcoholic content by weight (or about 4 per cent alcohol by volume) The latter beers are sold in states in which a beverage with a higher alcoholic content is prohibited by law, as in Texas and Oklahoma

	Average Beer	3 2% Beer
Apparent extract	3 50	4 40
Alcohol, percentage by weight	3 70	3 05
Alcohol, percentage by volume	4 75	3 92
Real extract (solids)	5 05	5 60
Reducible sugar	1 25	1 30
Dextrines	3.25	3 55
Protein	0 38	0 36
Acidity as lactic acid	0 12	0 12
Mineral substance	0 14	0 13
Carbonic acid gas by volume	2 9	2 7
p_H value	4 60	4 58
Color Lovibond ½ inch cell	2 7	2 5

The amount of beer which a person must consume to be under the influence of alcohol depends on so many factors that definite amounts cannot be given Some of the factors are weight and build of the individual, mental stability, previous experience with alcohol rate of drinking and presence of food in the stomach A more valuable criterion for alcoholic influence is the amount of alcohol in the blood which represents the unburned alcohol that is responsible for alcoholic influence. When this amount approaches 0 05 per cent some persons exhibit loss of clearness of intellect and self control that they ordinarily would possess The smallest amount of 3.2 per cent beer which could produce this condition in a 150 pound (68 Kg) man is about 12 ounces (0 35 liter)

REFRIGERATION OF TETANUS ANTITOXIN

To the Editor —How long is it safe to refrigerate tetanus antitoxin (1 10 dilution with sterile saline solution) to be used for the ophthalmic test for sensitivity to tetanus antitoxin? At what temperature should it be refrigerated? After how long a period can a second 0 5 cc of tetanus toxoid be given to be effective

M D , Maryland

Answer.—Tetanus antitoxin in a 1 10 dilution with sterile saline solution should be safe to use for at least forty-eight hours if kept in a refrigerator at about 50 F However, for the ophthalmic test for sensitivity it is best to prepare a fresh solution just before it is applied

An interval of two to three months between injections of tetanus toxoid is not too long when inoculations are given for active immunization. After primary immunization against tetanus a booster dose of toxoid to raise the antitoxin titer should be effective regardless of the lapse of time

NUTRITIVE VALUE OF RAW EGGS

To the Editor —Kindly furnish information on the nutritive property of raw eggs Eggnogs are widely used in hospitals and private practice to build up patients

Eugene M Holden M D Amherst Mass

Answer —Whole eggs are considered easily digestible. Studies by M S Rose and G MacLeod (*J Biol Chem* **58** 369, 1923) on the behavior of egg white in the human alimentary tract indicated that the average coefficient of digestibility for the raw egg white was 83 per cent The coefficient of digestibility for cooked egg white was 86 per cent When the eggs were beaten the ultilization of the protein was improved slightly

Raw egg white leaves the stomach rapidly and undergoes little digestion there Egg white appears to contain an antienzyme which causes it to resist tryptic digestion. It is reported that heating destroys the antienzyme This fact is advanced as a possible reason for the difference in digestibility of raw and cooked egg whites as noted in dogs (Rose M S and Vahlteich, E M *J Am Dietet A* **14** 593, 1938) Recent work has shown that raw egg white contains a factor which inactivates the vitamin biotin (Gyorgy, P , Rose, C S , Eakin R E , Snell, E E , and Williams, R J *Science* **93** 477, 1941) Eggs, both raw and cooked, continue to be regarded as important and valuable foods

CUTANEOUS MONILIASIS

To the Editor —A 21 year old student nurse was scratched on the forehead by a patient in one of the state mental hospitals in January 1949 Subcutaneous lesions developed about the forehead and eye which have periodically opened and spontaneously drained small amounts of purulent material This material has been repeatedly cultured and the responsible organism proved to be a pathogenic strain of Candida albicans Exhaustive studies have failed to reveal evidence of moniliasis elsewhere in the patient The lesions are slowly spreading What therapy would you suggest?

D M Ulrich M D Seattle

Answer —Cutaneous moniliasis is described in modern textbooks of dermatology In one (Manual of Clinical Mycology, National Research Council Committee on Medicine, Philadelphia, W B Saunders Company, 1944) it is classified in three forms (1) localized lesions, (2) generalized lesions and (3) monilids If the dermal infection in the case described is actually caused by the yeast, it falls in class 1 and evidence of infection elsewhere in the body is not needed

Primary moniliasis seldom affects persons in robust health but usually those who are debilitated. In the case in question, apparently in an otherwise healthy person it is possible that the lesion is a pyoderma in which Monilia may be present merely as saprophytes Further attempts should be made to detect other micro organisms or other causes

Treatment outlined in textbooks stresses improvement of general health and 1 4,000 potassium permanganate soaks three times a day, followed by application of 1 per cent solution of methylrosaniline chloride. Ammoniated mercury ointment (5 per cent) may be used instead Fractional roentgen therapy has also been recommended

ESSENTIAL HEMOGLOBINURIA

To the Editor —A woman aged 26 unmarried four years ago was drenched in a storm subsequently she had a severe chill and soon after noticed bloody urine Since that time she has had recurrent and severe hematuria She has been studied thoroughly At one time she had a splenectomy which did not bring relief Results of all studies have revealed normal conditions except urinalysis The diagnosis is essential hemoglobinuria Has there been any therapeutic measure of recent date other than repeated transfusions which might help her? I read an article in which penicillin was used with good results

M D New York

Answer —It is assumed that the diagnosis of hemoglobinuria is correct and that there is not actual bleeding from the genitourinary tract as implied in the question Almost all cases of hemoglobinuria can be attributed to some known etiologic agent. These may be found in most medical textbooks

The treatment of hemoglobinuria should include the removal or avoidance of known etiologic factors Transfusions are necessary when there has been massive blood destruction, however, in some cases these may be followed by reactions Supplementary iron should be given Intercurrent infections, no matter how slight, should be controlled Recent data lend doubt to the belief that alkali therapy prevents renal damage during hemoglobinuria, and certainly the production of alkalosis is to be avoided. The antihistaminic drugs may be of value in those cases due to allergic causes

There is no reason to believe that penicillin therapy will be of any benefit in conditions other than the hemoglobinuria caused by syphilis or in certain rare acute or subacute infections due to bacteria which are susceptible to the drug The paroxysmal cold hemoglobinuria found in certain patients with syphilis may not respond to any form of treatment

EPILEPSY AND PREGNANCY

To the Editor —A patient who has epilepsy is pregnant She has not had convulsions since her pregnancy She had some minor convulsions earlier but these have been controlled with mephobarbitol (mebaral®) What effect has pregnancy on epilepsy and should some oher anticonvulsant be used? What effect will mephobarbitol have on the baby?

M D Massachusetts

Answer —Pregnancy does not have a uniform effect on epilepsy Anticonvulsants do not affect the pregnancy or the fetus, and since mephobarbital seems to be effective in controlling seizures it may be continued in the present dosage. If seizures recur, or if the electroencephalogram is interpreted as grossly abnormal diphenylhydantoin sodium (dilantin sodium®) could be substituted

BUNDLE BRANCH BLOCK

To the Editor —There is confusion in the literature concerning the precordial electrocardiographic findings in complete left bundle branch block and complete right bundle branch block In left bundle branch block the septum is activated from right to left This should produce in the precordial leads from the right side of the precordium an initial upward deflection followed by a larger downward deflection or an rS pattern From the left side of the precordium since the initial impulse is traveling away from the electrode there should be an initial downward deflection followed by a predominantly larger upward deflection, or a qR pattern Contrariwise, in a complete right bundle branch block where the septum is activated from left to right, from the right side of the precordium there should be an initial downward deflection followed in this case by a smaller upward deflection, a Qr pattern or a Qrs pattern, and from the left side of the precordium in a right bundle branch block a small upward deflection followed by a predominantly downward deflection or an rS type of deflection should occur Textbooks and current literature do not agree on suitable criteria for making such a diagnosis from the precordial leads Often the limb leads are equivocal and there is dependence on the observations in the precordial leads What are the current views on this subject?

Harry A Pinsky, M D , Camden, N J

Answer —It now is generally accepted that the first part of ventricular muscle depolarized during normal activation of the heart is the left side of the ventricular septum The electromotive force developed during this initial time period has a direction from left to right Therefore the first deflection seen normally in left-sided chest leads is a small Q wave and in leads from the right precordium or from the cavity of the right ventricle, a small R wave In left bundle branch system block the activation of the septum occurs in the opposite direction from right to left Hence an initial q is absent in left precordial leads and no r wave is seen in leads from the right ventricular cavity and in right-sided chest leads A tiny r seen sometimes in right sided chest leads can be explained by relatively earlier activation of the free wall of the right ventricle In right bundle branch system block where the initial (septal) activation occurs in the normal order, from left to right, usually a small R and tall R′ is seen in leads taken over the right precordium and a qRs in leads from the left precordium According to the current view the localization of a bundle branch system block should be based primarily on precordial leads, where the delay of the onset of the so-called intrinsicoid deflection (time interval from beginning of QRS to peak of the tallest upright wave [R, R′ etc]) is assumed to indicate the delay of activation of either right or left ventricle

HEMIANOPSIA

To the Editor —A patient has right homonymous hemianopsia, probably due to cerebral hemorrhage, since she has hypertension She has been told that there is some type of spectacle which will benefit this condition What type of spectacle or apparatus was meant, and where might such be available?

Thomas J LaMotte, M D , Harlingen, Texas

Answer —In The Journal, July 23, 1949, page 1024, Eric Bell Jr , of Cleveland, describes a mirror for patients with hemianopsia This apparatus consists of a vertical mirror fastened to a spectacle lens in such a way that it reflects objects in the blind part of the field of vision to a seeing part of the field of vision It probably is of value as a means of attracting the patient's attention to a moving object in his field of vision

RED PATCHES ON VULVA AND CERVIX

To the Editor —On the cervix of a patient are two or three round red patches about the size of a grain of wheat Around the meatus and vulva also there are some red patches There is leukorrhea, which had not been present until the last month The discharge has no color Could it be cancer?

C L Pearcy, M D , Salem, W Va

Answer—The gross appearance of this lesion is not suggestive of cancer The patient's age and any history of abnormal bleeding would be information of value in considering the diagnosis The distribution of the inflammatory lesions suggests a monilial infection, and microscopic examination of scrapings from these areas might well reveal the presence of yeast organisms Concurrently the patient should be investigated for glycosuria, which is sometimes found in conjunction with vulvovaginitis

HYPERTENSION IN PHEOCHROMOCYTOMA

To the Editor —Please send me the latest information on the treatment of hypertension in pheochromocytoma

Henry T Sherman, M D , Valdosta, Ga

Answer —The hypertension due to pheochromocytoma is treated by excision of the pheochromocytoma This results in a permanent cure of the hypertension There is no medical treatment for such hypertension

SPLENECTOMY FOR THROMBOCYTOPENIC PURPURA

To the Editor —Kindly advise what effect, if any, would the removal of the spleen have on thrombopenic purpura

Andrew F O'Connor M D , Berkeley, Calif

Answer.—Splenectomy results in clinical cure in about 70 per cent of cases of true idiopathic thrombocytopenic purpura severe enough to justify this procedure. If the history, physical examination and marrow studies have excluded the allergic, drug idiosyncrasy, myelophthisic and hypoplastic types of thrombocytopenic purpura, which are not benefited by splenectomy, and the rare hereditary form of the disease, and if the megakaryocyte count in the marrow shows a definite thrombocytic hyperplasia and the clot retraction test shows a definite delay or absence of clot retraction, the clinical diagnosis of idiopathic thrombocytopenic purpura is justified The next problem is the evaluation of the risk of splenectomy versus the risk of medical management with multiple transfusions of fresh (not over six hours old) citrated blood The majority of cases in children respond to medical management as do some of the cases in young adults, but if the disease is chronic and recurrent or if bleeding from the gums recurs within a few days after the clot retraction time has been brought to normal by two to four transfusions six hours apart, splenectomy with removal of any accessory spleen is indicated The operation should be performed by a surgeon skilled in this particular operation and should be scheduled a half hour after the last of four transfusions of fresh blood given six hours apart

The clot retraction time is much the most reliable test in following these patients, as the thrombocyte count is subject to great error

CADAVER FOR DISSECTION

To the Editor —Some other physicians and I are interested in obtaining an embalmed cadaver for dissection so that we may improve our knowledge of anatomy Where can we obtain one? Some biological supply houses in the past had bodies for sale

V Warren Swayze, M D , Muscatine, Iowa

Answer —We do not know of any biological supply house in the United States that has embalmed human bodies for sale The laws of most states do not permit such traffic A summary of the laws in various states is contained in the book "A Survey of the Law Concerning Dead Human Bodies" by Atty George H Weinmann, published by the National Research Council, December, 1929

It is there stated that in Iowa the bodies of persons dying in various public institutions or found dead shall be delivered to the medical college of the state university or to certain other colleges unless the deceased, during his last illness, expressed his desire that his body be otherwise disposed of or his relatives or friends express such desires These bodies are to be given to medical schools in accordance with rules promulgated by the health department of the state

The inquiring physician might apply to Dr W R Ingram, professor of anatomy and member of the Administrative Executive Committee of the College of Medicine of the State University of Iowa at Iowa City or to the health department of the state

ACROPARESTHESIA

To the Editor —The answer to the query on acroparesthesia in *The Journal*, Dec 17, 1949, page 1196, seems designed to make an invalid out of anyone with these complaints I see no reason for believing that acroparesthesia is of other than mechanical origin Whether the pressure is due to compression of the neural outlet as a result of an old injury or faulty posture or whether it is due to tension on the nerve roots in the brachial plexus caused by faulty posture is of academic interest but does not help the patient The answer states that this condition occurs "when from muscular atonia the muscles supporting the shoulder girdles allow these to drop to an abnormally low level " The statement is made that this "is a mechanically produced syndrome rather than one due to trophic or vasomotor changes " I cannot see how this makes it obvious that the treatment is rest How can rest restore tone to a muscle that has no tone? Such patients do not need rest, they need exercise Occasionally, in extreme cases, it is necessary to put the patient to bed for a few days, and then light head traction is much more useful than propping the patient up with the arms in a sling Exercises should be started while the patient is still in bed These exercises in general should consist of exercises to strengthen the flexor groups, both abdominal and anterior cervical Definite symptomatic improvement may be expected in the milder cases within three to ten days and complete relief, even in fairly severe cases, in six to ten weeks The patient must be given detailed instruction in the type of exercise and in the number of times that he is to carry out the exercises The individual exercise tolerance varies widely The fact that there may be a secondary vasomotor and neurotrophic disturbance in this condition, if it has been present for months or years, must not be lost sight of In these cases, priscoline® (2-benzyl-4,5-imidazoline hydrochloride), one 25 mg tablet four times a day for the first ten days to two weeks of the treatment, will usually be all that is necessary to combat this complication specifically

Duncan C McKeever, M D , Houston, Texas

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CHLORAMPHENICOL (CHLOROMYCETIN®) IN THE TREATMENT OF MURINE TYPHUS

HERBERT L. LEY Jr M D
THEODORE E WOODWARD M D
and
JOSEPH E. SMADEL M D
Washington D C

The extensive field trial of chloramphenicol (chloromycetin®) in the treatment of scrub typhus (tsutsugamushi fever), which was carried on in the Federation of Malaya during 1948 by the United States Army Medical Research Unit,[1] furnished an opportunity to add to our earlier, limited studies [2] on the therapeutic efficacy of this new antibiotic in patients with murine (endemic) typhus Since murine typhus occurs frequently in the southern part of the United States,[3] it seems worth while to report the beneficial results obtained with chloramphenicol in this disease

MATERIALS AND METHODS

Chloramphenicol—The antibiotic, prepared by a fermentation process, was supplied by Parke, Davis & Company in the form of compressed 0 1 and 0 25 Gm tablets suitable for oral use

Selection of Patients—During the period March through May, 1948, 7 patients with murine typhus were observed who contracted their illness in the vicinity of Kuala Lumpur, Federation of Malaya Because of the limited supply of chloramphenicol at that time, it was possible to treat only 3 of these patients

Diagnosis of the Disease—It is virtually impossible to establish a diagnosis of murine typhus on clinical grounds alone in a country where scrub typhus also occurs Symptoms observed in the two diseases include a high fever accompanied with chills, severe frontal headache, muscular aches and occasional photophobia Physical examination is of little value in differentiating murine typhus from scrub typhus, unless the eschar characteristic of the latter is found, for a macular rash, splenomegaly, lymphadenopathy and conjunctival injection may occur in both diseases, although the last tw observations are more characteristic of scrub typhus

All 7 patients complained of fever accompanied wit frank chills or chilly sensations, 6 noted severe malais associated with muscular aches, 5 complained of front headaches, and 1 had photophobia In addition to th usual evidences of a prolonged febrile illness physic examination revealed splenomegaly, which disappeare after convalescence in 3 patients (controls 3 and 4 an treated case 7), and lymphadenopathy, conjunctiv injection and a faint transient macular rash in 1 patie (treated case 35)

History of recent activities of the patient was of som help in differentiating murine typhus from scrub typhu Earlier workers at the Institute for Medical Researc had designated these two diseases as urban and rur typhus, respectively [4] Preliminary differentiation of th two diseases was aided by the Weil-Felix reaction agglutinins for the OX 19 strain of Proteus vulgar develop in patients with murine typhus, and for th OX K strain in patients with scrub typhus Ultimatel the diagnosis of murine typhus in the patients include in this report rested on specific serologic procedure which employed rickettsial suspensions as antigens In each patient there developed during convalescence fourfold or greater rise in titer of specific murine typh antibodies as determined by complement fixation agglutination technic

Treatment—The 4 control patients were given onl supportive therapy and nursing care during their illnes The 3 treated patients received, *in addition, an initi* oral dose of 45 to 60 mg chloramphenicol per kilogra of body weight, followed by approximately 0 25 G orally every three hours over periods ranging fro thirty to eighty-four hours

Laboratory Procedures—The usual clinical metho of blood and urine analysis were used Chloramphen col blood levels were determined by a modification the bioassay procedure of Joslyn and Galbraith [6] Wei Felix agglutination and specific complement fixatio and rickettsial agglutination tests were performe according to the standard procedure of the Army Med cal Department Research and Graduate School [5]

RESULTS

Patients Given Supportive Treatment—There we no fatalities or complications in the group of 4 ma Indian laborers who received supportive treatment

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From the Army Medical Department Research and Graduate School and the Commission on Immunization of the Army Epidemiological Board Washington D C and the University of Maryland School of Medicine, Baltimore

The observations reported here were made on the wards of the government hospitals and in the laboratories of the Institute for Medical Research Kuala Lumpur Federation of Malaya we were aided by members of the staffs of these organizations

[1] (a) Smadel J E Woodward T E Ley H L Jr Philip C B Traub R Lewthwaite R. and Savoor S R Chloromycetin in the Treatment of Scrub Typhus Science **108**: 160 1948 (b) Smadel J E Woodward T E Ley H L Jr and Lewthwaite R Chloramphenicol (Chloromycetin) in the Treatment of Tsutsugamushi Disease (Scrub Typhus) J Clin Investigation **28** 1196 1949

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[3] Maxcy K F An Epidemiological Study of Endemic Typhus (Brill s Disease) in the Southeastern United States Pub Health Rep. **41**: 2967 1926 Stuart B M and Pullen R. L Endemic (Murine) Typhus Fever Clinical Observations of One Hundred and Eighty Cases Ann Int Med **23** 520 1945

[4] Lewthwaite R and Savoor S R The Typhus Group of Diseas in Malaya I The Study of the Virus of Rural Typhus in Laborato Animals Brit. J Exper Path **17** 1 1936 II The Study of the Vir of Tsutsugamushi Disease in Laboratory Animals ibid **17** 15 1936 I The Study of the Virus of the Urban Typhus in Laboratory Anima ibid **17** 23 1936

[5] Plotz H The Rickettsiae ' in Simmons J S and Gentzkow J Laboratory Methods of the United States Army ed 5 Philadelph Lea & Febiger 1944 chap 32 pp 559 578

[6] Joslyn D A. and Galbraith M A Turbidimetric Method for t Assay of Antibiotics J Bact **54** 26 1947 Smith R. M Josly D A Gruhzit, O M McLean I W Jr, Penner M A a Ehrlich J Chloromycetin Biological Studies ibid **55** 425 1948

composite graph of their temperature charts is given in figure 1, which also includes data on the Weil-Felix OX 19 and murine typhus rickettsial agglutinating antibody titers obtained with serums taken on the twentieth day of disease It will be noted that the temperatures of these 4 patients returned to normal levels between the fourteenth and sixteenth days of illness and that diagnostic antibody titers developed in all 4 persons by the twentieth day

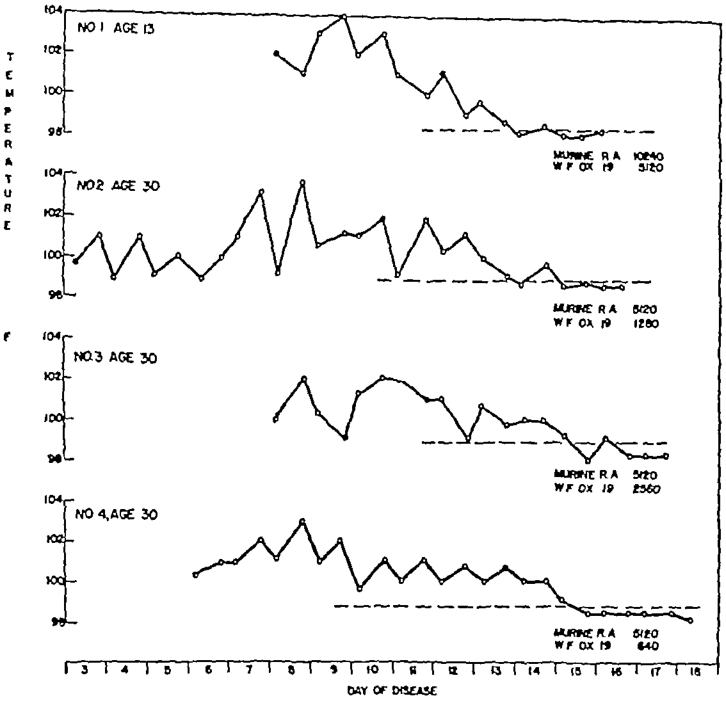

Fig 1 —Temperature charts of the four patients with murine typhus who were given supportive treatment only Figures after Murine R. A and WF OX 19 indicate titer of murine rickettsial agglutination and Weil Felix reaction for OX 19 strain of P vulgaris

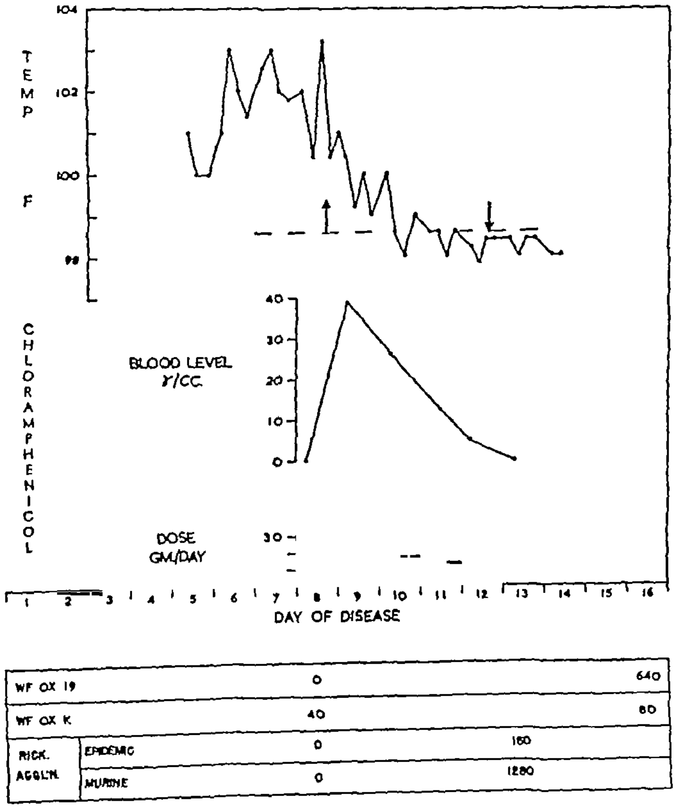

Fig 2,—Clinical response of patient 7 with murine typhus to chloramphenicol therapy WF OX 19 and WF OX K denote Weil Felix reaction to OX 19 and OX K strains of P vulgaris

Patients Receiving Chloramphenicol Therapy—The therapeutic results obtained in the 3 male Indian laborers in the present study who received chloramphenicol are illustrated by the observations in patient 7, whose record is summarized graphically in figure 2 The dramatic defervescence which occurred after the administration of chloramphenicol was observed in each treated patient Patient 7 received an initial oral dose of 2 5 Gm chloramphenicol during the afternoon of the eighth day of disease, this was followed by oral doses of 0 2 Gm every two hours until the morning of the third day of treatment, when the dosage was reduced to 0 3 Gm every four hours Therapy was discontinued after eighty-four hours The concentration of chloramphenicol in the blood reached a maximum of 40 micrograms per cubic centimeter on the second day of treatment and slowly declined thereafter The patient was afebrile and entirely asymptomatic on the morning of the tenth day of disease, but his temperature did not stay below the normal level until the eleventh day It should be noted that by the sixteenth day of illness agglutinins for the OX 19 strain of P vulgaris and murine typhus rickettsiae had risen to diagnostic levels Essentially similar results were observed in the 2 remaining patients who were treated with chloramphenicol for shorter periods of time

TABLE 1—*Murine Typhus Patients Treated with Chloramphenicol*

Patient		Day of Disease Rx Begun	Last Febrile Day of Disease	Hours of Fever After Rx	Treatment		Murine Rick Aggln Titer	
No	Age				Hr	Gm	Acute	Conv
6	35	7	8	40	64	7 5	1 160	1 640
7	14	8	11	60	84	9.5	0	1 1,280
35	30	11	12	36	30	5 5	0	1 2,560

TABLE 2—*Murine Typhus Patients*

	Treated	Untreated
No of patients	3	4
Day of disease Rx begun	7 to 11	
Last febrile day of disease	8 to 12, av 10 3	14 to 16 av 14 7
Hours of fever after Rx	36 to 60, av 45	
Deaths or complications	0	0

A summary of pertinent data on the 3 treated patients is given in table 1 Treatment was begun, on the average, on the eighth day of illness and was continued for sixty hours, during which time an average total of 7 5 Gm of chloramphenicol was administered

Table 2 presents comparative information on the treated and untreated groups of patients It is evident that chloramphenicol therapy resulted in termination of fever from thirty-six to sixty hours after treatment was begun and that it shortened appreciably the febrile period of this disease, which generally lasts for fourteen days

No toxic manifestations were attributable to chloramphenicol therapy This is in agreement with our more extensive experience in treating patients with scrub typhus and typhoid with chloramphenicol[7]

COMMENT

Oral administration of chloramphenicol to 3 patients with murine typhus resulted in prompt defervescence accompanied with complete subjective recovery thirty-six to sixty hours after therapy was begun The present group was treated, on the average, on the eighth day of illness, which is relatively late in the course of a disease that is characterized by fourteen days of fever

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[7] Woodward T E Smadel, *J E* and *Ley H L Jr* *Chloramphenicol and Other Antibiotics in the Treatment of Typhoid Fever and Typhoid Carriers* J Clin Investigation to be published Smadel, Woodward Ley and Lewthwaite[1b]

The average febrile period in the present treated group was about ten days, this might be expected to be reduced in other groups by earlier treatment

In all 7 patients there developed diagnostic titers of agglutinins for the OX 19 strain of P vulgaris and for murine typhus rickettsiae by the twentieth day of illness Agglutinins for the rickettsiae of epidemic typhus and for the OX K strain were either absent from the convalescent serums or present in nondiagnostic titers In only 1 of the patients did diagnostic amounts of complement-fixing antibody against washed murine typhus rickettsial antigen develop by the twentieth day of disease This observation is in agreement with those of Scoville and his co-workers,[8] who noted the relatively late appearance of this complement-fixing antibody in convalescent patients

CONCLUSION

Until more experience is accumulated, the following regimen is suggested for the treatment of patients with murine typhus An initial oral dose of 60 mg chloramphenicol per kilogram of body weight is to be followed by 0 25 Gm doses at three hour intervals over a period of forty-eight hours or until the temperature becomes normal, whichever period is longer Supportive therapy, including intravenous fluids and plasma, may be given to seriously ill or debilitated patients, but recovery is so rapid after the administration of chloramphenicol that these probably will be required only occasionally

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ROUTINE LABORATORY DIAGNOSIS OF VIRUS AND RICKETTSIAL DISEASES

Results of an Eighteen Month Study

ALBERT MILZER M D
Chicago

In the past, laboratory technics for the diagnosis of the virus and rickettsial infections have been too complicated for the routine hospital laboratory, and these procedures were largely limited to research laboratories with highly trained personnel Recently serologic tests for many of these diseases have been developed to the point that hospital laboratories equipped to carry out complement fixation tests can perform many of these tests routinely and be of great diagnostic aid to the clinician Also commercial diagnostic antigens and antiserums are now available for many of the virus and rickettsial diseases

The serologic procedures which are chiefly applicable to routine work include the complement fixation and hemagglutination inhibition tests These tests depend on the demonstration of a significant rise in antibody titer in serums obtained during the acute and convalescent phases of illness This paper is a general discussion of the present status of the laboratory diagnosis of virus and rickettsial diseases, with emphasis on those procedures which can be employed in the routine hospital laboratory Results obtained during the eighteen months since the introduction of routine diagnostic tests for virus and rickettsial diseases in my laboratory are also presented

Two types of laboratory tests are generally used for diagnosis of virus and rickettsial diseases The first consists of attempts to isolate the etiologic agent by animal or chick embryo inoculation, and the second of various serologic tests to detect the presence of specific antibodies Animal or chick embryo inoculation is too expensive and impractical for the average hospital laboratory for several reasons The number of positive isolations is relatively low and highly trained personnel are needed to identify the isolated agents There is also considerable risk of laboratory infection in working with many of the viruses and rickettsiae in the active state [1] Many of the viruses, especially of the neurotropic group, are present in the blood or other body fluids only during the incubation period, by the time the physician sees the patient the virus is no longer present and the chances of isolation are minimal

Another disadvantage of animal or chick embryo inoculation for virus isolation is that certain stocks of laboratory animals are known to be spontaneously infected with viruses which might be confused with the strain isolated from the patient These include lymphocytic choriomeningitis [2] Theiler's encephalomyelitis virus [3] and pneumonitis [4] In fact, the normal chick embryo has been found infected with the virus of Newcastle disease [5] and a pleuropneumonia-like organism [6]

For laboratory personnel who are interested in attempting the isolation of viruses, a summary of the detection of viruses in various human tissues, secretions or excretions is shown in table 1 It must be kept in mind that the virus of lymphocytic choriomeningitis is one of the few which may be constantly present in the blood or spinal fluid after the patient has clinical signs and symptoms of infection The viruses of St Louis encephalitis,[7] Western equine encephalomyelitis,[8] poliomyelitis,[9] lymphogranuloma venereum and mumps [10] are rarely isolated from the blood The viruses of St Louis encephalitis and Eastern equine encephalomyelitis have not been isolated from the spinal fluid thus far Henle and McDougall [11] recently reported the successful isolation of mumps virus from the spinal fluid

Most of the neurotropic viruses can be isolated from tissues of the central nervous system soon after death of the patient by the inoculation of suitable susceptible animals (table 2) It must be emphasized that viruses are unstable and rapidly become inactivated at room temperature but retain their infectivity if stored at low temperatures Probably the best technic for preservation until inoculations for virus isolation can be carried out is by storage of infected specimens in sealed glass ampuls in solid carbon dioxide (CO_2) at minus 76 C[12] If solid carbon dioxide is not available, a less satisfactory procedure applicable to storage of infected tissue is by immersion in 50 per cent buffered glycerin[13] kept at 3 to 5 C Drying of viruses and other biologic materials while in the frozen state in a lyophile apparatus is another excellent method for preservation[14] Penicillin and streptomycin or sulfathiazole mixtures are usually added to sputum and other virus specimens to destroy bacteria prior to animal and chick embryo inoculation[15] Ether may be used to destroy bacteria in stools from patients with poliomyelitis[16] Lack of space does not permit details of chick embryo and animal inoculation, but those interested in this *subject may* consult articles by Van Rooyen and Rhodes,[17] Rivers[18] and Topping[19]

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[8] Scoville A B Jr Bennett B L Wertman K and Gauld R L The Serologic Pattern in Typhus Fever II Murine *Am J Hyg* **47** 166 1948

From the Department of Bacteriology and Virology Medical Research Institute Michael Reese Hospital

Read in part before the Society of Experimental Biology and Medicine Illinois Branch May 10 1949 *Aided by a grant from the* Committee on Scientific Research of the American Medical Association and the Michael Reese Research Foundation Shirley Nathan and Sylvia King gave technical assistance

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[11] Henle G and McDougall C L Mumps Meningo-Encephalitis Isolation in Chick Embryos of Virus from Spinal Fluid of a Patient Proc. Soc Exper Biol. & Med **66** 209 211 (Oct) 1947

TABLE 1—*Detection of Virus in Various Human Tissues, Secretions or Excretions*

Disease	Brains and Cord	Spinal Fluid	Blood	Respiratory Secretions and Saliva	Conjunctiva	Feces	Skin and Genital Lesions
Lymphocytic choriomeningitis	+	+	+	+	—	+	—
St Louis encephalitis	+	—	+*	—	—	—	—
Equine encephalomyelitis	+	+*†	+*†	—	—	—	—
Jap B encephalitis	+	+	+	—	—	—	—
Poliomyelitis	+	—	+*	+	—	+	—
Rabies	+	—	—	+	—	—	—
Herpes simplex	+	+‡	—	+‡	—	—	+
Lymphogranuloma venereum	—	+	+*	—	+	+	+
Psittacosis	—	—	+	+	—	+	—
Influenza	—	—	—	+	—	—	—
Yellow fever	—	—	+	—	—	—	—
Variola	—	—	—	—	—	—	+
Mumps	—	+	+*	+	—	—	—
Inclusion conjunctivitis	—	—	—	—	+	—	—
Molluscum contagiosum	—	—	—	—	—	—	+
Epidemic keratoconjunctivitis	—	—	—	—	+	—	—

* Isolated rarely † Western type ‡ Found in normal persons

Table 2 summarizes the manner of identifying the isolated etiologic virus The following characteristics aid in the identification of the neurotropic viruses

1 Animal host range—for example, rabies virus is pathogenic for nearly all mammals but poliomyelitis virus only for certain Old World monkeys and the chimpanzee

2 Routes of inoculation that produce disease—for example, the virus of lymphocytic choriomeningitis can produce *infection* by almost any route of inoculation, but most strains of poliomyelitis virus must be inoculated intracerebrally or intranasally

3 Tissue infected—for example, the virus of lymphocytic choriomeningitis is found in almost all tissues of the body, but that of St Louis encephalitis is largely confined to the nervous system

4 Microscopic observations—for example, Negri bodies in rabies, necrosis of anterior horn cells in poliomyelitis

5 Serologic tests—neutralization, complement fixation and hemagglutination inhibition, which are more fully discussed later

NEUTRALIZATION TEST

The neutralization test is used to detect the presence of virus-neutralizing antibodies in the patient's serum or may be used to identify an isolated virus provided a serum with known *specific antibodies is employed* The test serum is mixed with the virus in suitable proportions, incubated and inoculated into susceptible animals In some of these tests the amount of virus used is kept constant and serial dilutions of serum added, in others the amount of serum is kept constant and the virus is diluted Serum should be collected as early as possible during the acute stage and later during convalescence, and a diagnosis is made by the demonstration of a significant rise in specific neutralizing antibody titer This test has not proved to be of equal value for diagnosis of rickettsial infections

The time of appearance of neutralizing antibodies for the various virus infections after onset of disease varies considerably Antibodies may be present in significant titer within one week in Western equine encephalomyelitis, but as long as ten weeks may elapse in lymphocytic choriomeningitis before the appearance of antibodies[20] However, as a rule most virus-neutralizing *antibodies are detectable in serum obtained one* month after onset Serums containing neutralizing antibodies are preserved by storage in solid carbon dioxide

The neutralization test is too technical, costly and time-consuming for routine diagnostic use It has proved *exceedingly useful in my laboratory to confirm* positive complement fixation tests for the neurotropic group of viruses Further information concerning the technic and interpretation of the neutralization test may be found in the excellent articles by Hammon[21] and Smadel[22]

HEMAGGLUTINATION INHIBITION TEST

Hemagglutination inhibition is a useful test that can be readily employed in the routine diagnostic laboratory for diagnosis of influenza and mumps virus infections This test depends on the fact that allantoic fluid of chick embryos infected with these viruses causes agglutination of chick erythrocytes and those of certain other species when mixed in a test tube and incubated at room temperature Serums containing antibodies for these viruses will specifically inhibit the hemagglutination in a quantitative manner Diagnosis depends on the demonstration of at least a fourfold rise in antibody titer between the acute and convalescent phase serums Several satisfactory technics for performing the hemagglutinin inhibition test are described in the literature I have found the technic described by Salk suitable for routine work[23]

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The hemagglutination inhibition test has been used in the past for the diagnosis of Newcastle disease in man Recently, however, Jungherr and others[24] have shown that many mumps convalescent phase serums apparently also contain both hemagglutination-inhibiting antibodies and neutralizing antibodies for Newcastle virus For this reason these workers expressed their belief that a diagnosis of Newcastle disease in man should be made only with caution, especially in the absence of virus isolation

COMPLEMENT FIXATION TEST

Until recently the value of the complement fixation test for the routine diagnosis of virus and rickettsial diseases has been discredited With the recent development of stable noninfectious and commercially available diagnostic antigens[25] the complement fixation test has been used successfully for routine diagnosis of virus and rickettsial diseases in my laboratory for the past eighteen months This test has several obvious advantages over virus isolation and the neutralization test as already mentioned Animals are not required, and in many instances specific complement-fixing antibodies can be detected in the patient's serum relatively early in the course of the disease (2 to 3 weeks after the onset) For example, complement-fixing antibodies for St Louis encephalitis, Japanese B encephalitis and lymphocytic choriomeningitis appear much earlier than the neutralizing antibodies On the other hand, the neutralizing test for equine encephalomyelitis is positive before the complement fixation test[26] At present there is no satisfactory routine complement fixation neutralization or hemagglutination inhibition test for the diagnosis of poliomyelitis[27]

The complement fixation test is relatively inexpensive, and a technician familiar with the basic principles of this test as practiced in bacteriology should be able to use it successfully for routine virus and rickettsial diagnosis The complement fixation test as applied to virus and rickettsial antigens must be carefully controlled Normal tissues of the same source used to grow the virus or rickettsia must be used as antigen controls in each *test in order to rule out nonspecific reactions* Also, known positive and negative control serums should be included in each test The patient's serum must be inactivated at 60 C for twenty minutes to reduce nonspecific reaction (slightly anticomplementary or Wassermann positive) Often the serums may still be unsatisfactory unless heated twice at 60 C, or once at 65 C, for twenty minutes It is advisable to test all positive serums at least twice until considerable experience has been gained in performing the complement fixation test and, if possible, to check positive results by another test such as the neutralization or hemagglutination inhibition test

The technic of the complement fixation test used in the present studies is essentially a modified Kolmer test as recommended by the manufacturer of the antigen[25] First the serum sample of the patient was inactivated by heating at 60 C for twenty minutes The test consists in mixing 1 unit of antigen (0 1 cc) with 2 full units of complement (0 2 cc) and 1 5 and 1 20 dilutions of the serum (0 2 cc) to be tested Lower dilutions of the test serum are not used in the screen test in order to avoid cross fixations The mixture is incubated in a water bath at 37 C for one hour and twenty minutes Next the hemolytic system, consisting of 0 4 cc of an equal volume of 2 per cent suspension of washed sheep cells and amboceptor (hemolysin) solution containing two hemolytic units is added The tests are read after further incubation at 37 C for a half hour The test is repeated with higher dilutions if the 1 5 and 1 20 serum dilution show 4 plus reaction An antigen control prepared from normal tissue of the same source used to prepare the antigen and both positive and negative control serums are included in each test If serum samples cannot be tested shortly after they have been collected, it is important that they be kept frozen

TABLE 2—*Identification of Etiologic Virus*

Disease	Laboratory Animals of Choice	Special Pathology	Serology of Convalescent Serum: Neutralization Test	Serology of Convalescent Serum: Complement Fix Test	Other Tests*
Lymphocytic choriomeningitis	Mouse and guinea pig	Choriomeningitis	+	+	—
St Louis encephalitis	Mouse	Encephalitis	+	+	—
Equine encephalomyelitis	Mouse and guinea pig	Encephalomyelitis	+	+	—
Jap B encephalitis	Mouse	Encephalitis	+	+	—
Poliomyelitis	Monkey	Degeneration anterior horn cells	+†	—	—
Rabies	Mouse	Negri bodies	+	+ (exp)	—
Herpes simplex	Fertile egg rabbit cornea and mouse	Inclusions keratitis encephalitis	+	—	—
Lymphogranuloma venereum	Mouse and fertile egg	Encephalitis miyagawa corpuscles	+	+	—
Psittacosis	Mouse	L C L bodies ‡ in liver and spleen	+	+	—
Influenza	Fertile egg mouse and ferret	Pneumonia	low titer +	+	Red cell aggl
Yellow fever	Mouse and monkey	Encephalomyelitis (mouse) liver necrosis (Councilman inclusions)	+	+†	Ppt test†
Variola	Fertile egg and rabbit cornea	Guarnieri bodies	+	+	Ppt test
Mumps	Fertile egg and monkey	Parotitis	+	+	Red cell aggl.
Inclusion conjunctivitis		Smear for inclusions	—	—	—
Molluscum contagiosum		Smear for inclusions	—	—	—
Epidemic keratoconjunctivitis	Mouse	Encephalitis	+	—	—

* Ppt denotes precipitation test
† The significance of the test is controversial
‡ L C L (Levinthal Coles and Lillie) bodies are elementary bodies in psittacosis regarded as the virus of that disease

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As in the neutralization and hemagglutination inhibition tests a diagnosis should not be made on the results with a single serum specimen. The positive result may be due to a past infection or previous vaccination. Paired serum samples must be obtained during the acute and convalescent phases of illness. Acute phase serums should be collected as soon as possible after onset of illness and convalescent phase serums at least two and four weeks after onset. Negative or weakly positive reactions in the acute phase followed either by a positive reaction or a fourfold or more rise in antibody titer are diagnostic. In my experience complement fixing titers in the neurotropic virus group seldom exceed 1:40, while titers in excess of 1:160 are not unusual in the rickettsia and psittacosis groups.

TABLE 3.—*Classification of Diagnostic Virus and Rickettsial Complement Fixation Antigens for Clinical Use*

A. Respiratory group
  1. Influenza A and B
  2. Psittacosis pneumonitis
  3. Lymphocytic choriomeningitis *
  4. Q fever
B. Encephalitides group
  1. Western equine encephalomyelitis *
  2. Eastern equine encephalomyelitis *
  3. Lymphocytic choriomeningitis *
  4. St. Louis encephalitis *
  5. Mumps
  6. Jap. B encephalitis *
C. Aseptic meningitis group
  1. Lymphocytic choriomeningitis *
  2. Mumps
  3. Lymphogranuloma venereum †
D. Rickettsial group
  1. Rocky Mountain spotted fever
  2. Murine typhus
  3. Epidemic typhus
  4. Rickettsialpox
  5. Q fever

* Positive findings should be checked by neutralization tests.
† Positive findings should be checked by Frei intradermal test.

RESULTS OF ROUTINE TESTS

During the past eighteen months virus and rickettsial diagnostic tests have been performed on a routine basis. Complement fixation tests with various commercial virus and rickettsial diagnostic antigens[25] were done with serums obtained during the acute and convalescent phases of disease in accordance with principles already discussed. The selection of diagnostic antigens was made on the basis of clinical observations in the patient. For example, serums of patients with atypical pneumonia were tested with the respiratory group of complement fixation antigens listed in table 3. Tests for cold hemagglutinins[28] and Streptococcus MG[29] were also done routinely in cases of atypical pneumonia. The encephalitides group of antigens were used for patients with encephalitis, and the aseptic meningitis group except lymphogranuloma venereum for those with virus meningitis. The rickettsial group were used for patients whose clinical condition was suggestive of infection with these organisms. All antigen groups listed in table 3, including cold hemagglutinins, Streptococcus MG and heterophil agglutination were tested in patients with fever of unknown origin.

TABLE 4.—*Results of Routine Serologic Tests in 131 Patients with Atypical Pneumonia*

Diagnostic Antigen	Positive Results No.	 Percentage
Lymphocytic choriomeningitis	2*	1.5
Psittacosis pneumonitis	2	1.5
Influenza A	4†	3.0
Influenza B	6†	4.5
Q fever	1	0.8
Cold agglutinins	38	28.5
Streptococcus MG	7	3.7

* Verified by neutralization tests.
† Verified by hemagglutination inhibition test.

Positive results with complement-fixing tests for viruses of encephalitides and aseptic meningitis groups were checked by neutralization tests. The hemagglutination inhibition test was used to verify positive influenza and mumps fixations. In selected cases attempts were made to isolate etiologic viruses and rickettsiae by inoculation of susceptible animals and chick embryos.

A total of 131 patients with the clinical diagnosis of atypical pneumonia were studied. These patients were sporadic cases in Michael Reese and other Chicago hospitals. Results obtained are shown in table 4. Blood cultures of these patients showed no growth, and sputum cultures contained the usual normal flora. Limited attempts to isolate viruses in this group of patients were negative. None were positive for more than a single serologic test listed in table 4. Standard technics were followed in cold hemagglutinin[30] and Streptococcus MG agglutinin tests.[31] Titers of 1:40 or more in convalescent phase serums were considered significant in the cold agglutinin test and 1:20 or more for Streptococcus MG. All the infections in this series were moderate in severity except those of 2 patients with positive psittacosis-pneumonitis fixation who later recovered. Both gave a history of prolonged contact with pigeons. The patient whose serum was positive for Q fever probably acquired the infection in California, because he was convalescing from atypical pneumonia when he arrived in Chicago. Subsequently a recurrence developed, and the titer of his convalescent phase serum was 1:160. The source of infection in the 2 patients with lymphocytic choriomeningitis is unknown. Both denied contact with mice. The clinical observations in the cases of this series with positive fixation will be described in a later paper.

TABLE 5.—*Results of Routine Serologic Tests in 89 Patients with Encephalitis*

Diagnostic Antigen	Positive Results No.	 Percentage
Western equine encephalomyelitis	2*	2.2*
Eastern equine encephalomyelitis	0	0
St. Louis encephalitis	0	0
Lymphocytic choriomeningitis	3†	3.3
Mumps	8‡	8.8
Japanese B encephalitis	0	0

* Only one verified by neutralization test.
† Verified by neutralization tests.
‡ Verified by hemagglutination inhibition test.

Eighty-nine patients with symptoms and clinical observations of encephalitis or aseptic meningitis were studied. These were also patients with sporadic infections for which a bacterial etiologic factor could not be established. Table 5 summarizes the results obtained

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[28] Cold agglutinins are antibodies in the serum of certain patients with atypical pneumonia and other diseases which aggregate the patient's erythrocytes or group O erythrocytes at low temperatures but not at 37 C. The titer of cold agglutinins is generally proportional to the severity of the illness.

[29] Streptococcus MG is a nonhemolytic streptococcus which can be isolated from serum from patients with certain atypical pneumonias. In such patients agglutinins for this strain usually develop during convalescence.

[30] Peterson, O. L.; Ham, T. H., and Finland, M.: Cold Agglutinins (Autohemagglutinins) in Primary Atypical Pneumonias, Science **97**: 167 (Feb. 12) 1943.

[31] Thomas, L.; Mirick, G. S.; Curren, E. C.; Ziegler, J. E., Jr., and Horsfall, F. L., Jr.: Studies on Primary Atypical Pneumonia: II. Observations Concerning the Relationship of a Non-Hemolytic Streptococcus to the Disease, J. Clin. Investigation **24**: 227-240 (March) 1945.

Two patients had positive complement fixation tests for Western equine encephalomyelitis The first was an adult whose infection was confirmed by the neutralization test and has been reported in detail previously[32] The second was a boy aged 8 years, in whom there was a false positive result, the neutralization test was completely negative, and the patient was later shown to have a cerebellar tumor A similar false positive test for the virus of lymphocytic choriomeningitis in another patient with tumor of the brain has been observed by Zichis[33] In the 3 patients with tests positive for lymphocytic choriomeningitis the results were confirmed by neutralization tests Two of the 3 had clinical symptoms of aseptic meningitis and the third of encephalitis All 3 were adults who gave a history of living in homes overrun with mice

None of the 8 patients whose complement fixation tests were positive for mumps in table 5 had salivary gland involvement or a previous history of mumps infection Clinically, all had meningoencephalitis that occurred at a time (late in the Spring of 1949) when there was a relatively high incidence of mumps in the general population The majority gave a history of contact with patients known to have mumps about three to four weeks prior to onset In this connection it is interesting to note that of 44 patients with poliomyelitis studied during the summer of 1949 who are not listed in table 5, 8 whose disease was diagnosed as nonparalytic poliomyelitis also showed positive serologic evidence for mumps infection None of the latter had evident parotitis or a previous history of mumps These cases will be reported in detail later No fatalities occurred among the persons with confirmed positive serologic responses listed in table 5 Unfortunately, specimens suitable for virus isolation were not submitted to the laboratory from the patients with positive serologic tests Negative results were obtained in the limited number of virus isolations which were attempted on the remainder of the patients, including 4 who died

Data obtained in serologic studies of 85 patients with fever of unknown origin are outlined in table 6 The Paul-Bunnell technic[34] was used for the heterophil agglutination test, and only results obtained after guinea pig kidney absorption[35] are recorded in table 6 Repeated blood cultures of these patients showed no growth, and attempts to isolate etiologic bacteria and fungi were negative Reactions of the blood to the Kahn and Wassermann tests were negative Agglutination tests for typhoid, paratyphoid A and B, brucellosis, tularemia and the Weil-Felix reaction were not diagnostic Roentgenograms of the chest in most of the group were interpreted as revealing normal conditions

The positive serologic test for Western equine encephalomyelitis shown in table 6 was in an adult without apparent involvement of the central nervous system The 5 patients whose serums were positive for mumps were 3 children and 2 adults without evident parotitis or involvement of the central nervous system and without a history of previous mumps infection These cases occurred late in the Spring of 1949 when mumps, as previously mentioned, was prevalent in Chicago The 4 patients with positive tests for influenza virus showed no evidence of involvement of the respiratory tract, and roentgenograms of their chests revealed normal conditions The 7 patients with positive absorbed heterophil agglutination tests were adults with positive hematologic[36] but negative clinical observations for infectious mononucleosis No fatalities occurred in this group, and results of limited attempts to isolate viruses and rickettsiae were negative

COMMENT

The results obtained in the present study indicate the feasibility and value of conducting routine serologic tests for the diagnosis of many virus and rickettsial diseases by the hospital laboratory Obviously, the complement fixation test properly controlled is the procedure of choice for routine work Some laboratories may prefer to substitute the hemagglutination inhibition test for diagnosis of influenza and mumps infections My results and those of others[37] indicate that there is good agreement between these two types of tests as a diagnostic aid On the other hand, I believe that positive complement fixation with the encephalitides group of antigens should be checked by the neutralization test because of the observation of false positive fixations for Western equine encephalomyelitis and lymphocytic choriomeningitis in 2 patients with cerebral tumors Perhaps it would be advisable for laboratories with facilities only for routine tests to send serums positive for viruses of the encephalitides group to the larger virology laboratories for tests in verification of the diagnosis

TABLE 6—*Results of Routine Serologic Tests in 85 Patients with Fever of Unknown Origin*

	Positive Results	
Diagnostic Antigen	No	Percentage
Western equine encephalomyelitis	1*	1.2
Eastern equine encephalomyelitis	0	0
St Louis encephalitis	0	0
Lymphocytic choriomeningitis	2*	2 4
Mumps	5†	5 9
Psittacosis-pneumonitis	0	0
Influenza A	2†	2 4
Influenza B	2†	2 4
Q fever	0	0
Cold agglutinins	0	0
Streptococcus MG	0	0
Rickettsialpox	0	0
Typhus (murine and epidemic)	0	0
Rocky Mountain spotted fever	0	0
Heterophil	7	8.2

* Confirmed by neutralization tests
† Confirmed by hemagglutination inhibition tests

Results obtained in infections of the atypical pneumonia group agree essentially with those previously reported by others[38] Only 4 per cent of serologic tests were positive for Streptococcus MG in Chicago (table 4), this figure is considerably lower than that for other parts of the United States[38a] Horsfall[39] has stated that in approximately 50 per cent of patients with atypical pneumonia cold agglutinins or Streptococcus MG agglutinins develop and that these tests are of confirmatory value in diagnosis The fact that such known virus and rickettsial diseases as psittacosis, influenza, lymphocytic choriomeningitis and Q fever may closely simulate atypical pneumonia serves to emphasize the diagnostic value of conducting serologic tests for patients with infections of the respiratory group Furthermore, the full benefits of chemotherapy are more apt to be achieved if the exact etiologic basis of the disease is known It must also be kept in mind that pulmonary tuberculosis, bacterial pneumonias, pulmonary mycoses or toxoplasmosis may present clinical manifestations which are indistinguishable from those of atypical pneumonia In fact, Kunstadter, Whitcomb and I recently reported a proved, nonfatal case of primary histoplasmosis in a patient with the clinical observations of atypical pneumonia [40]

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[32] Saphir W and Milzer A Western Equine Encephalomyelitis in Chicago J A M A **140** 778 780 (July 2) 1949

[33] Zichis J Personal communication to the author

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[36] Dr Karl Singer of the Hematology Department of Michael Reese Hospital performed the hematologic studies

[37] Aikawa J K and Meiklejohn G The Serologic Diagnosis of Mumps A Comparative Study of Three Methods J Immunol. **62** 261 269 (July) 1949

[38] (*a*) Horsfall F L Jr Primary Atypical Pneumonia Ann Int. Med **27** 275 281 (Aug) 1947 (*b*) Smadel J E Atypical Pneumonia and Psittacosis J Clin Investigation **22** 57 65 (Jan) 1943

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The value of conducting routine serologic tests in infections caused by the encephalitides group of viruses is evident because these infections usually cannot be differentiated by clinical or pathologic observations Two or more neurotropic viruses may be endemic in the same region, i e , those of St Louis encephalitis and Western equine encephalomyelitis in certain of the Western states [41] Laboratory aid is also essential for the diagnosis of lymphocytic choriomeningitis because of the protean clinical manifestations that this virus produces [42] Positive serologic evidence for mumps in the patients with meningoencephalitis without involvement of the salivary glands, as shown in table 5, and in other patients whose disease was diagnosed as nonparalytic poliomyelitis has been reported previously by others [43] Complement fixation tests for lymphogranuloma venereum were not done in my patients with aseptic meningitis because the diagnostic antigen for this test was not available until recently Those laboratory workers who plan to include tests for this virus in their routine diagnostic procedures must remember to corroborate positive results by the intradermal Frei test [44] Otherwise an erroneous diagnosis might be made because cross fixations are known to occur between lymphogranuloma antigens and psittacosis [45]

Approximately 14 per cent of the serologic tests exclusive of heterophil agglutination were positive in the 85 patients with fever of unknown origin (table 6) This is especially interesting because the usual bacteriologic diagnostic tests of these patients were negative These results also emphasize the importance of conducting routine tests for virus and rickettsial disease for this category of patients so that an accurate diagnosis can be made and specific therapy instituted Undoubtedly, the various possible clinical manifestations of the virus and rickettsial infections will be further elucidated in the future, when these tests are performed routinely on a widespread basis by many laboratories Perhaps a higher percentage of positive results would have been obtained in this group of patients if it had been possible to include serologic tests for the various mycoses and toxoplasmosis in addition to the diagnostic antigens employed

SUMMARY

1 The laboratory diagnosis of virus and rickettsial diseases is discussed with emphasis on those procedures which can be employed by the routine diagnostic laboratory The complement fixation or in a few instances the hemagglutination inhibition tests are recommended as the procedures of choice for routine use Close liaison must be maintained between the clinician and the laboratory so that the proper group of diagnostic antigens will be selected for tests in a given case, depending on the clinical observations

2 Approximately 44 per cent positive results were obtained in routine serologic tests of 131 patients with atypical pneumonia The positive results include 2 each for lymphocytic choriomeningitis and psittacosis-pneumonitis group, 4 influenza A, 6 influenza B, 1 Q fever, 38 cold agglutinins and 7 Streptococcus MG

3 Approximately 14 per cent positive results were obtained in routine serologic tests of 89 patients with encephalitis or aseptic meningitis These include 2 for Western equine encephalomyelitis (only 1 of which was confirmed), 3 for lymphocytic choriomeningitis and 8 for mumps meningoencephalitis In addition, 8 of 44 patients with poliomyelitis showed serologic evidence for mumps infection

4 Approximately 23 per cent of serologic tests were positive in 85 patients with fever of unknown origin The positive results include 1 Western equine encephalomyelitis, 2 lymphocytic choriomeningitis, 5 mumps, 2 each for influenza A and B and 7 heterophil agglutination

5 The value of conducting routine serologic tests for the virus and rickettsial diseases is discussed from the point of view both of diagnosis and of elucidation of the protean clinical manifestations that can be produced by these agents

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[44] In a recent personal communication, Dr K F Meyer states that many patients with proved psittacosis show positive reactions to Frei tests with lygranum® antigen (lymphogranuloma venereum antigen from the chick embryo)

[45] Levine S Holder E C , and Bullowa J G M Complement Fixation for Lymphogranuloma Venereum and for Psittacosis with Frei Reactions Among Pneumonia Patients, J Immunol **46** 183 188 (April) 1943

Imperturbability—In the physician or surgeon no quality takes rank with imperturbability, and I propose for a few minutes to direct your attention to this essential bodily virtue Perhaps I may be able to give those of you in whom it has not developed during the critical scenes of the past month a hint or two of its importance, possibly a suggestion for its attainment Imperturbability means coolness and presence of mind under all circumstances, calmness amid storm, clearness of judgment in moments of grave peril, immobility, impassiveness or, to use an old and expressive word, phlegm It is the quality which is most appreciated by the laity though often misunderstood by them, and the physician who has the misfortune to be without it, who betrays indecision and worry, and who shows that he is flustered and flurried in ordinary emergencies, loses rapidly the confidence of his patients In full development, as we see it in some of our older colleagues, it has the nature of a divine gift, a blessing to the possessor, a comfort to all who come in contact with him—Osler, William Aequanimitas, Philadelphia, P Blakiston's Son & Co , 1904, p 3

ANGINA PECTORIS DURING DECUBITUS

Hitherto Unrecognized Manifestation of Circulatory Failure

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The term angina pectoris of decubitus was popularized by Vaquez [1] to describe a pain identical in nature, localization and distribution with angina pectoris of effort but occurring during the night when the patient is in a recumbent position The pain frequently awakens the patient and tends to be of longer duration than that of angina pectoris of effort There can be little doubt that Vaquez confused many cases of myocardial infarction with this syndrome However, that there actually is a group of persons who have, at least temporarily, a predilection for what is exclusively or predominantly angina pectoris while in a recumbent position was clearly described by Sir Thomas Lewis,[2] who reported on angina pectoris in young persons with aortic regurgitation He also stated that he had seen nocturnal angina pectoris in middle-aged men without valvular disease Since this report, isolated cases of this syndrome have been reported The literature was ably summarized in 1941 by Ernstene,[3] who reported 6 instances of this syndrome in young persons with aortic regurgitation Numerous hypotheses have been advanced to explain the predilection of some persons for attacks of angina pectoris while in a recumbent position The purpose of this report is to present evidence that this syndrome occurs in coronary artery disease and that it may be a manifestation of latent edema that pools into the lung and that responds to diuretics as rapidly as do the more common symptoms of dyspnea, cough and insomnia

REPORT OF CASES

CASE 1—M S a retired businessman aged 79, was first seen April 22, 1945 because of swelling of the ankles and precordial pain precipitated by walking two city blocks In 1926 he had suffered a heart attack and had been in bed for seven weeks In 1929 he had first experienced pain on walking Physical examination revealed an unusually well preserved man for his age. The ankles were slightly edematous The blood pressure was 110 systolic and 70 diastolic There was an aortic and an apical systolic murmur The electrocardiogram revealed an old healed posterior infarct He was digitalized, given both papaverine and aminophylline and instructed in the use of glyceryl trinitrate. He did well until 1947, when swelling of the ankles again developed He was at this time placed on a salt poor diet and given mercurophylline tablets to take three times a day on alternate weeks On this regimen he did exceptionally well, spending winters in Florida and summers in Atlantic City without having to call on any doctor

In the latter part of August 1949, while in Atlantic City, he began to have increasing nocturnal attacks of precordial pain that awoke him frequently These attacks increased in frequency so that he was taking as many as 20 glyceryl trinitrate tablets a night. During the day he was entirely comfortable and needed no glyceryl trinitrate tablets A local physician was called who at first increased the dose of digitalis and then reduced it because of slowing of the heart rate. Increasing amounts of sedatives and analgesics failed to prevent or decrease the attacks

I saw the patient late in the afternoon on September 24 He was comfortable and free of pain The ankles and feet showed edema (2 plus) There was no other clinical evidence of congestive failure He had stopped taking the mercurial diuretic three weeks previously He was hospitalized on September 29, and, after normal values for sodium, chloride and urea had been obtained, he was given 2 cc. of mercurophylline injection intramuscularly During the next twenty-four hours he voided 3,600 cc. of urine. He was given three more injections of this drug and on each occasion passed excessive quantities of urine The ankles and feet became free of edema The attacks of nocturnal angina pectoris ceased, and the patient has been able, without sedation, to sleep comfortably throughout the night He is again taking mercurophylline tablets He has required no glyceryl trinitrate tablets at night since his discharge from the hospital

CASE 2—J P, a mechanic aged 58, had a heart attack Aug 12, 1949 and was treated by bed rest at home for three weeks After one week of convalescence, he began to have, while in bed at night, attacks of precordial pain which required increasing numbers of glyceryl trinitrate tablets for relief Because of this pain, he was advised by his family physician to return to bed Bed rest, however, had no beneficial effect in relieving his pain Indeed, he soon learned that he had no pain while sitting in bed or in a chair or even when going to the bathroom Because of the pain at night, he preferred sleeping in a chair He even took short walks out of doors against his physician's advice and discovered that he could do this without discomfort. His sleep at night continued to be interrupted by attacks of precordial pain He was seen in consultation by several physicians The opinions expressed varied from progressive coronary artery disease to a cardiac neurosis superimposed on healed myocardial infarction He was admitted to the Temple University Hospital for study and treatment on October 10 Physical examination revealed a well preserved man with no recognizable signs of congestive failure The blood pressure was 100 systolic and 80 diastolic. Clinical examination of the heart showed nothing remarkable. The electrocardiogram showed evidence of an old, healed anterior infarct. Because of my experience with the first patient, this patient was given 2 cc of mercurophylline injection intramuscularly, which resulted in a prompt excessive diuresis that unfortunately was not measured accurately Two succeeding injections likewise produced excessive diuresis, but of diminishing amounts There was a prompt loss of nocturnal pain Sleep continued uninterruptedly throughout the night Since the patient's discharge from the hospital, a regimen of modified salt restriction with a weekly or fortnightly injection of mercurophylline has prevented the recurrence of nocturnal pain.

CASE 3—H M, a merchant aged 49, had had rheumatic fever at 11 years of age I first saw him on Nov 2, 1944 for a routine cardiac study He had no symptoms Physical examination revealed a well developed man The blood pressure was 140 systolic and 60 diastolic The left ventricle was moderately enlarged, and auscultation revealed the presence of aortic valvular disease He returned annually for reexamination and felt entirely well until the last week in October 1949 At this time, he first began to tire more quickly than previously He noticed that lying on his left side at night was distressing to him Later, he began to have actual pain at night The pain awakened him and at times prevented him from falling asleep again He was seen again on November 8, at which time no objective change was detectable by physical or fluoroscopic examination or in the electrocardiogram He was, however, 9 pounds (4 Kg) heavier than he had been at his last annual examination six months before his present visit. Mercurophylline, 2 cc intramuscularly, was administered He reported two days later that he passed about 3 quarts (3,000 cc) of urine He lost 4 pounds (2 Kg) during this interval He was instructed on the advisability of abstaining from foods rich in salt and has been free of nocturnal pain

COMMENT

The term angina pectoris of decubitus was attacked at its birth by Albutt,[4] who regarded the syndrome it purported to describe as a figment of Vaquez's imagi-

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From the Department of Medicine Temple University Hospital and Medical School

[1] Vaquez H in Laidlow G F Diseases of the Heart Philadelphia W B Saunders Company 1924

[2] Lewis, T Angina Pectoris Associated with High Blood Pressure and its Relief by Amyl Nitrite with a note on Nothnagel's Syndrome Heart 15 305 1931

[3] Ernstene A C and Schneider R W Angina Pectoris in Young Adults with Aortic Regurgitation A Report of Six Cases Am J M Sc 202 737 1941

[4] Albutt cited by Vaquez.[1]

nation More recently Riseman and Brown[5] have attacked the term as a misnomer and prefer to speak of angina on exertion, and angina during rest They regard the symptom complexes as identical but believe that they are precipitated under different conditions The fundamental causes of pain are, according to the present concept, identical, but the symptom complexes do have certain clinical differences and the different clinical conditions precipitating the attacks may require different treatment Herein lies the value of the term Angina pectoris of decubitus is usually of longer duration than angina pectoris of exertion The patient, if articulate, will complain of a flushed, warm face with fulness in the neck in contrast to the pallid, cold face of angina of effort The blood pressure and pulse rate are increased during the attack We had opportunities to examine such a patient during many attacks, a young, intelligent lawyer who had recently had a coronary occlusion and whose nocturnal attacks were regarded by others as a manifestation of a cardiac neurosis because he was free of attacks during the day But more important than the differences in symptom complex are the differences in treatment The attack in each type of angina is terminated by glyceryl trinitrate therapy However, angina on exertion is prevented by abolishing the type of exertion that produces the pain, angina during decubitus is abolished by restriction of salt and by the induction of diuresis

This response to dehydration appears to indicate that attacks of angina pectoris during decubitus are produced by excessive work placed on the heart by the sudden increase in fluid return to the heart Pain is not an nfrequent manifestation of left ventricular failure, but is frequently completely disguised by the more obvious nptom of dyspnea As a sole manifestation of circulatory failure, it has apparently not been hitherto recognized

Angina pectoris during effort and angina pectoris during decubitus may occur alone or together in the same person Persons with angina pectoris during decubitus may so restrict their physical activity during the day that angina pectoris on effort does not occur On the other hand, the abolition of angina pectoris during decubitus by a dehydration regimen may make the patient feel so much better that he is more active during the day and thereby precipitates angina pectoris on effort This change is illustrated by the patient in case 1 who became free of angina pectoris during decubitus and resumed his daily activities to such an extent that he required a rare tablet of glyceryl trinitrate during the day but slept uninterruptedly during the night This sequence of events seems to indicate that the immediate precipitating mechanism, coronary insufficiency, is identical in both conditions, but that the mechanism of the production of this insufficiency is different in both types of angina Hence, the treatment is different

SUMMARY

1 Three cases of angina pectoris during decubitus that responded to a dehydrating regimen are described

2 It is suggested that this syndrome is a manifestation of congestive circulatory failure

3 The term angina pectoris during decubitus is regarded as useful because the treatment of this condition differs from that of angina pectoris on effort

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[5] Riseman J E F, and Brown, M G An Analysis of the Diagnostic Criteria of Angina Pectoris A Critical Study of One Hundred Proved Cases, Am Heart J **14** 331, 1937

USE OF SODIUM PROPIONATE IN EXTERNAL INFECTIONS OF THE EYES

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The lower fatty acids have recently been shown to be of great value in the treatment of external infections of the eyes Sodium propionate (C_2H_5COONa), the sodium salt of one of these acids, has now been used in about 1,200 patients with infections of the lids, conjunctiva and cornea, and the results obtained compare most favorably with those noted with other antibiotics Experimental studies have also been made The drug is virtually nontoxic, it is effective against all the bacteria causing common ocular infections and against fungi, whose importance in blepharitis is now being appreciated, and its use does not result in allergies or sensitivities These and other advantages will be detailed later

HISTORY OF FATTY ACID THERAPY

For the complete history of the development of the medical use of the lower fatty acids the reader is referred to the papers of Peck and Russ[1] and of Theodore[2] Fatty acid therapy was introduced by Peck and his co-workers[3] in 1939, after they had demonstrated in 1938[4] that human sweat was fungistatic because of its content of the lower fatty acids They used sodium propionate clinically It was later demonstrated by Keeney[5] that sodium propionate was effective not only against pathogenic fungi but against some common bacteria as well

The present day applications of the fatty acids (derivatives of propionic, caprylic and undecylenic acids are in general use) include (1) dermatology, for mycotic and secondary bacterial infections, (2) gynecology,[6] for mycotic vulvovaginitis, (3) ophthalmology, for external diseases, (4) otology, for mycotic external otitis, (5) foods,[7] as a mold inhibitor in bread, cake and dairy products, and (6) nonirritating adhesive tape[8] Perlman[9] has recently advocated the oral use of undecylenic acid for psoriasis and neurodermatitis The lack of toxic manifestations and local irritation or sensitivity from the therapeutic use of the fatty acids has been stressed by all authors

PROPERTIES OF SODIUM PROPIONATE

Sodium propionate is apparently nontoxic, even when ingested in relatively large quantities It is soluble in water in solutions up to 40 per cent The solutions are colorless and are stable even when boiled

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From the Mount Sinai Hospital and the Manhattan Eye Ear and Throat Hospital

[1] Peck S M, and Russ W R Propionate Caprylate Mixtures in the Treatment of Dermatomycoses Arch Dermat & Syph **56** 601 613 (Nov) 1947

[2] Theodore F H Use of Propionates in Ophthalmology, Arch Ophth **41** 83 94 (Jan) 1949

[3] Peck S M Rosenfeld H Leifer W and Bierman W Role of Sweat as a Fungicide Arch Dermat. & Syph **39** 126 146 (Jan) 1939

[4] Peck, S M and Rosenfeld H The Effects of Hydrogen Ion Concentration Fatty Acids and Vitamin C on the Growth of Fungi, J Invest Dermat **1** 237 265 (Aug) 1938

[5] Keeney E L The Fungistatic and Fungicidal Effect of Sodium Propionate on Common Pathogens Bull Johns Hopkins Hosp **73** 379 390 (Nov) 1943 Keeney E L., Ajello J Broyles E N and Lankford E Propionate and Undecylenate Ointments in the Treatment of Tinea Pedis and an In Vitro Comparison of Their Fungistatic and Anti Bacterial Effects with Other Ointments ibid **75** 417 439 (Dec) 1944

[6] Alter R L, Jones C P and Carter B The Treatment of Mycotic Vulvovaginitis with Propionate Vaginal Jelly Am J Obst & Gynec **53** 241 244 (Feb) 1947

[7] Hoffman C, Schweitzer T R and Dalby G Fungistatic Properties of the Fatty Acids and Possible Biochemical Significance Food Research **4** 539 545 (Nov Dec) 1939

[8] Peck S M, Rosenfeld H Li K K and Glick A The Mechanism of Adhesive Plaster Irritation, J Invest Dermat **10** 367 376 (May) 1948

[9] Perlman H H Undecylenic Acid Given Orally in Psoriasis and Neurodermatitis J A M A **139** 444-449 (Feb 12) 1949

In aqueous solution, Acetobacter may form a sediment on standing This can be avoided by the use of 0 5 per cent methyl parahydrobenzoate or benzalkonium chloride in a 1 50,000 dilution Sodium propionate has been used in the eyes of rabbits in solutions as high as 20 per cent and in the human eye in 15 per cent solution, with only transitory burning and redness being noted For constant use a 5 to 10 per cent solution is recommended The 5 per cent solution, especially when buffered to a p_H of 7 to 7 3, causes no stinging at all when instilled The drug appears to be compatible with the vasoconstrictors and anesthetics often used in ocular therapeutics, and it has a prolonged action when used in the eye

FUNGISTATIC AND ANTIBACTERIAL SPECTRUM OF SODIUM PROPIONATE

Table 1 shows the groups of fungi and bacteria that are known to be influenced by sodium propionate As regards fungi, perhaps the most important species in ophthalmology is the *Pityrosporum ovale*, whose growth is inhibited by the drug The list of bacteria against which the effects of sodium propionate have been studied is as yet incomplete

In eye infections by far the most commonly incriminated organism is the staphylococcus, an organism exceedingly resistant to antibiotics Sodium propionate is effective against it, and bacterial fastness appears to develop slowly, if at all The effect of sodium propionate against Pseudomonas aeruginosa (Bacillus pyocyaneus) is of considerable practical importance in ophthalmic practice Of all the antibiotics used locally, only streptomycin is superior in its action against the organism, penicillin aureomycin, tyrothricin bacitracin and the sulfonamide compounds now in general use have little effect against Ps aeruginosa

ANIMAL EXPERIMENTS WITH SODIUM PROPIONATE

The corneas of eyes of rabbits were infected with suspensions of the following organisms Staphylococcus aureus, hemolytic streptococci, Klebsiella pneumoniae, *Escherichia coli* and Ps aeruginosa In each rabbit, one eye was immediately treated with sodium propionate solution (10 to 15 per cent), none of the treated eyes became infected In the untreated eyes, in almost every instance, severe corneal ulcers developed

In another series, after corneal ulcers due to the same organisms had developed, treatment was started with sodium propionate The treated eyes did much better than the untreated controls The earlier treatment began, the better was the result

Sterile abrasions of the cornea, as well as acid and alkali burns, were treated with 10 per cent solution of sodium propionate By comparison with untreated controls, it was established that the drug in 10 per cent concentration did not cause opacities and appeared to facilitate healing In contradistinction, antibiotics, especially the sulfonamide drugs, and other commonly used ocular antiseptics and anesthetics have been found, under similar conditions, to cause corneal opacities and to delay epithelial regeneration[10]

CLINICAL RESULTS

Sodium propionate has now been used in about 1,200 cases of conjunctivitis blepharitis and keratitis of various types and severity In a preliminary communication complete studies on 400 cases, 160 of which were fully evaluated bacteriologically, were reported A subsequent evaluation of 238 cases, in which cultures, smears and epithelial scrapings were done, is shown in table 2 Since results were comparable to those reported in the first paper,[2] a detailed statistical analysis is not included in this report Following is a general summary of clinical results based on all cases in which sodium propionate has been used to date

Acute Bacterial Conjunctivitis—In acute conjunctivitis due to the usual ocular pathogens, the use of 5 per cent sodium propionate solution results in decided improvement within forty-eight to seventy-two hours in almost every case Moreover, the relief of symptoms such as burning and itching is noted at once, before objective improvement is seen Cases of conjunctivitis due to the gonococcus and meningococcus have not been treated

Acute Virus Conjunctivitis—Sodium propionate does not appear to alter the course of epidemic keratoconjunctivitis or acute follicular conjunctivitis of Beal, although subjective relief occurs The short duration of the disease noted in some of the cases under observation was probably fortuitous Cases of acute trachoma and inclusion conjunctivitis were not treated

Table 1—*Growth Inhibiting Properties of Sodium Propionate*

Sodium propionate inhibits growth of the following fungi

- Trichophyton
- Epidermophyton
- Microsporum
- Candida (Monilia)
- Torula
- Coccidioides
- Pi ovale
- Aspergillus
- Blastomyces
- Actinomyces

Sodium propionate inhibits growth of the following bacteria

- Staph aureus
- Staph albus
- Hemolytic streptococci
- Streptococci of the viridans group
- Pneumococcus
- P aeruginosa
- Kleb pneumoniae
- Esch coli
- B subtilis
- B enteritidis

(Other bacteria have not yet been studied)

Table 2—*Results with the Local Use of 5 Per Cent Solution of Sodium Propionate in 238 Bacteriologically Studied Cases*

	Number of Cases	Improvement		
		Marked	Moderate	None
Acute bacterial conjunctivitis	130	112	13	5
Chronic conjunctivitis	18	15	2	1
Chronic blepharoconjunctivitis	59	44	13	2
Other chronic lid infections	10	7	2	1
Corneal ulcers	21	16	3	2
Totals	238	194	33	11

Allergic Conjunctivitis—The use of sodium propionate in vernal catarrh and hay fever has given results proved superior objectively as well as subjectively to those with antihistaminics used locally, in many instances This may be due to its antibacterial effect, in addition to its soothing action, which has been noted on other mucous membranes The fact that sensitivity to the drug is rare makes it an especially valuable agent in any infection occurring in an allergic person, or in cases in which a drug sensitivity has already occurred in the course of treatment

Chronic Conjunctivitis—The results of sodium propionate therapy in chronic conjunctivitis in general have been excellent Not enough infections due to Hemophilus duplex, the diplobacillus of Morax-Axenfeld, have been treated to come to any conclusions with regard to this organism

Chronic Blepharoconjunctivitis—Chronic blepharoconjunctivitis is recognized as the most difficult of external ocular infections to treat successfully There appear to be three main varieties[11] (1) ulcerative, due to toxic staphylococci, (2) seborrheic, considered to be due to the yeast Pi ovale, and (3) a mixed type, with both of these organisms being present in significant numbers Even in infections of the first type, the sulfonamide drugs and antibiotics often prove to be of little permanent value because of the development of bacterial resistance to these agents and of drug sensitivity Furthermore, in the infections due to yeasts they are practically of no value Thus a drug such as sodium propionate, which has both fungistatic and antibacterial properties and causes few sensitivities, would appear especially indicated The results with sodium propionate were gratifying, especially in the group of infections with a seborrheic component

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[10] Bellows J G Influence of Local Antiseptics on Regeneration of Corneal Epithelium of Rabbits Arch Ophth 36 70-81 (July) 1946

It should be emphasized, however, that the home use of any drug by the patient will not in itself effect a cure in chronic blepharoconjunctivitis of any severity Treatment must include lid massage, application to the lid margins of medicaments like silver nitrate and, perhaps, the use of toxoids of vaccines Often a systemic component or deficiency may be present, which should be corrected In the seborrheic habitus the amount of fatty acids secreted is considered by some workers to be greatly diminished and altered in character, and the saprophytic staphylococci, streptococci and yeast, such as Pi ovale, that are normally present increase vastly in number and may take on pathogenic characteristics[12]

Corneal Infections—Sodium propionate is efficacious in the ordinary catarrhal corneal ulcer of bacterial origin, in the more severe central types it has been used in fewer cases In some especially severe cases, after trial with penicillin, aureomycin and sulfonamide drugs had failed, sodium propionate proved effective In the particularly malignant corneal ulcer due to Ps aeruginosa it is superior to all the antibiotics available for topical administration except streptomycin, and it does not cause the local tissue irritation which delays healing, as streptomycin does

Sodium propionate is not effective against keratitis of virus causation In types due to deficiency, such as keratoconjunctivitis sicca and the rosacea type, it has been of value in controlling the severity of the condition

COMMENT

Clinical experimental studies appear to establish the value of the local use of sodium propionate in infections of the external eye and other associated conditions By and large, clinical results with it are as good in the average acute infection, as with any of the newer antibiotics For this reason, and because of its economy, stability and hypoallergenicity, its use in these cases is indicated In chronic infections of the lids its dual fungistatic and antibacterial properties should make it a drug of choice Its soothing character and the relative lack of sensitivity reactions to this drug make it a valuable adjunct in the treatment of ocular allergies and other types of chronic inflammation about the eye for which no specific agent is available Often, in these conditions the antibiotics aggravate the ailment because of the sensitivities that occur with their prolonged use

Routine use of sodium propionate after the removal of corneal foreign bodies is especially recommended to those physicians engaged in industrial practice, as a prophylaxis for the dreaded corneal ulcer due to Ps aeruginosa This organism often grows in the fluorescein solution instilled for the detection of corneal abrasions, the eye may thus be infected in this way as well

The general concept of using physiologic substances, such as the fatty acids, in the treatment of disease is stimulating As Peck stated,[13] just as simple organisms like Penicillium notatum produce antibiotics for their protection, so does the body produce human antibiotics to defend itself against bacteria, fungi and perhaps even viruses Further elaboration of this thought may lead to new approaches in therapeutics

SUMMARY

The lower fatty acids are nontoxic physiologic antibiotics and fungicides Sodium propionate, a fatty acid derivative, has been used clinically in about 1,200 cases of conjunctivitis, blepharitis and keratitis It has proved efficacious and nonirritating and is advocated as a supplement to or substitute for other therapeutic agents now in general use

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AN APPRAISAL OF CANCER DETECTION CENTERS

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To promote the maintenance of health in the individual, the medical profession for many years has been advocating the more widespread use of the periodic general physical examination It is recognized, however that the extensive application of this complex and relatively expensive procedure in the detection of a specific disease like cancer still is of debatable value

Since Nov 1, 1946 the Maryland Division of the American Cancer Society and the Maryland State Department of Health, together with cooperating medical societies and hospitals, have operated a network of cancer detection centers In December 1947 we reported the results in the examination of 1,709 presumably well persons[1] We propose to present herein the data on 8,152 examinations, as well as an appraisal of the current status of this departure in the field of medical service

DISTRIBUTION OF CENTERS

The State of Maryland is composed of the City of Baltimore, with a population of 930,000, and twenty-three counties with a total population of 1,112,251[2]

In Baltimore there are three detection centers One is located in the Johns Hopkins Hospital and one in the University of Maryland Hospital, with one session in each per week and appointments limited to 20 persons per session The third, for Negro patients, is situated in Provident Hospital It has monthly sessions with an appointment list limited to 10 persons

In the counties there is a total of twenty centers, with one in each of seventeen counties and three in Baltimore County, which has the largest population In these eighteen counties the total population is 745,264, or 69 7 per cent of the total in all counties In the five remaining counties, representing 30 3 per cent of the population, centers have not yet been opened Detection centers are located either in the county health department or in the local hospital, whichever provides the most suitable facilities Sessions are limited to one per month, with the examination of a maximum of 10 persons per session

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[11] Thygeson P Etiology and Treatment of Blepharitis Arch Ophth **36** 445 477 (Oct) 1946

[12] Peck S M Personal communication to author

[13] Peck S M in discussion on Theodore F H Use of Propionates in Ophthalmology read before the Section of Ophthalmology New York Academy of Medicine April 19, 1948 *to be published*

[1] Jones H W Jr and Cameron, W R Case Finding Factors in Cancer Detection Centers J A M A **135** 964 (Dec 13) 1947

[2] Estimates of the State of Maryland Department of Health for the year 1946

Table 1—*Total Males Examined, by Diagnosis and by Age (Nov 1 1946 to April 30, 1949)*

Age Group	Total Males Examined	Number of Persons: Well	With Cancer	With Other Conditions
All ages	1 682	933	16	734
5 to 9	4	2		2
10 to 14	5	5		
15 to 19	7	3		4
20 to 24	55	40		15
25 to 29	130	87		43
30 to 34	290	182	1	107
35 to 39	274	162		112
40 to 44	252	146		106
45 to 49	212	106	1	105
50 to 54	157	68	4	85
55 to 59	118	55	5	58
60 to 64	74	31	1	42
65 to 69	47	16		31
70 to 74	24	8	1	15
75 and over	13	2	2	9

COMPOSITION OF THE STAFF

In the efficient operation of a cancer detection program, our experience indicates that it is of extraordinary importance to employ only highly qualified physicians who may be depended on to maintain high standards of performance The majority of our examiners are specialists certified by their respective specialty boards although this is not a prerequisite For the most part, also, they are members of the faculty of one of the two medical schools in Maryland, as well as members of the staff of the hospital in which they serve[3]

In the county centers the examiners, usually in pairs, travel from Baltimore for distances ranging from 12 to 150 miles Whenever qualified local physicians are available, however, we have encouraged their employment, but county medical societies as a rule have expressed a preference for "outside" examiners In one county where a competent local physician was employed, the medical society requested that he be replaced by an examiner from another area

DETECTION CENTER STATISTICS

In tables 1 and 2 data are shown on 8,152 persons examined in Maryland by age, sex and diagnosis, from Nov 1, 1946 to April 30, 1949 By adding the totals for both sexes, it will be noted that 4,314 (or 53 0 per cent) were classified as well persons, 46 (0 5 per cent) were found to have cancer and 3,792 (46 5 per cent) had other pathologic conditions In the centers in the counties of Maryland the proportion of persons with cancer (0 8 per cent) and with other conditions (50 7 per cent) is somewhat higher than in the centers in the City of Baltimore (0 3 per cent and 44 1 per cent, respectively)

In accordance with our standards, a person classified as well may have some minor condition, such as asymptomatic pes valgoplanus (flat feet), for which therapy is not indicated With the five exceptions noted later, a positive tissue diagnosis was obtained in all cases classified as cancer Persons were classified as having other conditions, major or minor, only when such conditions were regarded as being of sufficient importance to warrant referral to their family physicians for advice or treatment

In reporting cancer in the detection centers in Maryland, we have insisted on a microscopic confirmation of the diagnosis except in 4 skin cancers treated by experienced radiologists without biopsy and 1 lung cancer not treated because of the advanced age of the patient There were a number of persons with suspicious lesions or symptoms in whom a definite diagnosis could not be made in the center without further examination In these persons a final diagnosis of cancer was made after more detailed studies by their own physician Although discovery of their lesions was a direct but delayed result of the examination at the detection center, these persons were not classified as discovered cases They are, however, included in the follow-up statistics

In males the sites of the detected cancers were skin 10, lip 3, stomach 1 and lung 1 In females the sites were cervix 13, skin 10, breast 6, lip 1 and rectum 1

All the lesions of the cervix were diagnosed by biopsies of tissue obtained in the centers where some of the skin and lip lesions also were biopsied, but tissue from other lesions was examined microscopically by the physician who gave the definitive therapy Tissue from 3 mammary lesions and 1 rectal lesion was secured immediately before treatment

In essence, we have classified as cancers only malignant lesions occurring in sites which lend themselves to detection The diagnosis of cancer in other sites requires the use of technic not generally available in our centers Cancers diagnosed after study undertaken at the suggestion of the center have been included in a separate category

Table 2—*Total Females Examined, by Diagnosis and by Age (Nov 1 1946 to April 30, 1949)*

Age Group	Total Females Examined	Number of Persons: Well	With Cancer	With Other Conditions
All ages	6 470	3 381	31	3 058
5 to 9	6	2		4
10 to 14	9	7		2
15 to 19	23	16		7
20 to 24	248	147		101
25 to 29	681	400	1	280
30 to 34	968	531	2	435
35 to 39	1 144	632	5	507
40 to 44	1 024	530	6	488
45 to 49	844	407	5	432
50 to 54	661	310	4	347
55 to 59	425	208	4	213
60 to 64	249	109	2	138
65 to 69	109	46		63
70 to 74	55	28		27
75 and over	24	8	2	14

Although the examination in all centers is essentially the same and should disclose the large majority of lesions in detectable sites, in one center the scope of the examination is extended to include a routine gastrointestinal series, making gastric neoplasm theoretically detectable in that particular facility In the nondetectable sites, however, the findings cannot be expected to be complete[1]

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[3] Clinicians currently serving on the staff of one or more cancer detection centers are Drs C Bernard Brack Ernest I Cornbrooks Jr Raymond M Cunningham William Diehl Everett S Diggs Gerald A. Galvin William E Gilmore William E Grose Donald Hebb Theodore Kardash J H Mason Knox 3d Edward Lewison Frank Ford Loker John Duer Moores Glenford Mussenden Irving Leonard Ochs Ross Z Pierpont Edward H Richardson Jr Stuart Rinaka William H Sawyer Robert Sheppard E Roderick Shipley Edwin H Stewart Jr., Douglas H Stone Henry Welcome and J Donald Woodruff

The variation in the published reports of the percentage of cancer detected in other programs throughout the country seems to be explainable, in some measure at least, by the variation in diagnostic criteria If the results in one center or in a group of centers are to be compared, it is obvious that the criteria for diagnosis must be standardized and more precise methods of classifying the data must be adopted We therefore advocate the universal adoption of such a classification of criteria as was developed at the Conference on Cancer Detection sponsored by the American Cancer Society, Incorporated, Wentworth-by-the-Sea, Portsmouth, N H, Sept 9, 10 and 11, 1949 In the future we shall classify and report our results in accordance with the recommendations of that conference

TABLE 3—*Total Number and Percentage of Well Persons, with Cancer and with Other Conditions at Maryland Detection Centers, by Center (Nov 1, 1946 to April 30, 1949)*

		Total			Percentage		
Place of Examination	Total Examinees	Well Persons	With Cancer	With Other Conditions	Well Persons	With Cancer	With Other Conditions
All centers	8,152	4,314	46	3,792	53 0	0.5	46 5
Hagerstown	233	105	1	127	45 1	0 4	54 5
Frederick	234	107	2	125	45 7	0 9	53 4
Westminster	194	79		115	40 7		59 3
Ellicott City	115	44		71	38 3		61 7
La Plata	140	52		88	37 1		62.9
Leonardtown	104	46	1	57	44 2	1 0	54 8
Prince Frederick	111	46	3	62	42 3	1 8	55 9
Annapolis	188	102	1	85	54 3	0 5	45 2
Catonsville	40	30		10	75 0		25 0
Essex	90	55	3	32	63 3	1 1	35 6
Towson	112	76	1	35	67 9	0 9	31 2
Havre de Grace	160	78	2	80	48 7	1 3	50 0
Elkton	318	129	3	186	40 9	0 6	58 5
Chestertown	10	6		4	60 0		40 0
Centerville	161	81	1	79	50 3	0 6	49 1
Easton	9	5		4	55 6		44 4
Denton	174	94		80	54 4		46 0
Cambridge	148	66		82	44 6		55 4
Salisbury	456	249	9	198	54 6	2 0	43 4
Snow Hill	9	6		3	66 7		33 3
Total Counties	3,006	1,456	27	1 523	48 5	0 8	50 7
Johns Hopkins Hospital	2 017	848	7	1,162	42 1	0 3	57 6
Provident Hospital	107	29		78	27.1		72.9
St Agnes Hospital	958	662	1	295	69 1	0 1	30 8
University Hospital	2 064	1,319	11	734	64 0	0 4	35 6
Total Baltimore City	5,146	858	19	2,269	55 6	0 3	44 1

The age-specific diagnosis can be derived from tables 1 and 2 It will be observed that the percentage of cancer varies from 0 1 per cent in the age group 25 to 29 years to 10 8 per cent in those aged 75 and over It also will be noted that, in general, the proportion of well persons decreased with advance in age, with an increase in the percentage of persons with other conditions

In table 3 the examinees and percentages are set forth by center and by diagnosis It will be observed that there was a wide variation in the number of persons examined in the various centers, some of which have been in operation longer than others From center to center, a variation also will be noted in the proportion of persons with cancer as well as in the percentage of well persons and those with other conditions These differences probably are not significant, for in many instances the numbers are small and it is expected that these proportions will become more constant as the totals increase

FOLLOW-UP OF EXAMINEES

To assist in evaluating the work in the centers and to determine the extent to which the recommendations of the examiners are followed, these procedures have been adopted

1 Well persons receive a card six months after examination inquiring whether, in the meantime, they have (*a*) had no complaints, (*b*) had complaints but not seen a physician, and (*c*) seen a physician for (1) a minor complaint or (2) a major complaint

TABLE 4—*Follow-Up Six Months After Examination of 1,793 Persons Originally Classified as Well**

		Without Complaints		With Complaints, but Physician Not Consulted		Physician Consulted for			
						Major Complaint		Minor Complaint	
Location of Centers	Total Well Persons Followed	No	%	No	%	No	%	No	%
Counties	507	351	69 2	21	4 0	12	2 49	123	24.2
City of Baltimore	1,286	782	60 8	67	5 2	49	3 87	388	30.2
Total	1,793	1,133	63.2	88	4 9	61	3 4	511	28 5

* This represents a 61 5 per cent successful response from 2 054 well persons who received but a single follow up postcard

2 Persons with cancer, with other major as well as other minor conditions, are followed up two months after examination Appropriate letters are sent both to persons in these categories and to the physician To obtain as complete a follow-up as possible, it has been necessary for a public health nurse to visit at home a few persons classified as having cancer as well as a larger number of those with other conditions who failed to reply to our communications

In tables 4 and 5 the results of attempts to follow the first 5,353 persons of the total of 8,152 examinees is set forth In well persons the follow-up was considered unsuccessful if the subject failed to reply to a card, in those with minor conditions, if the physician did not answer our letters In those with cancer and with other major conditions the follow-up procedures were as complete as possible, sometimes involving telephone calls to the patient or his physician as well as home visits by the public health nurse There was little difference between the proportion of successful follow-up in the counties and in the City of Baltimore

TABLE 5—*Follow-Up Six Months After Examination of 1,060 Persons with Tentative Diagnosis of Other Minor Condition, and Follow-Up Two Months After Examination of 412 Persons with Tentative Diagnosis of Other Major Condition, Final Diagnosis Was Confirmed by Attending Physician*

	Follow up Success		Final Diagnosis in Followed Cases			
			Other Condition		Cancer	
Other Condition	No	%	No	%	No	%
Minor	1,060/1,889	56 1	1,053	99.3	7	0 7
Major	412/517	79 7	405	98.3	7	1 7

Table 4 shows the observations in 1,793 well persons six months after examination It will be observed that 1,133 (63 2 per cent) had no complaints, 88 (4 9 per cent) had complaints but had not visited a physician, 61 (3 4 per cent) had visited a physician for a major complaint, and 511 (28 5 per cent) had consulted a physician for a minor complaint Here also no significant difference is noted between the percentages of successful follow-up in the county and in the city The follow-up was successful on all 34 persons with a tentative diagnosis of cancer In 33 cases the diagnosis was confirmed and the patients were receiving treatment from their physicians One aged man with two basal cell epitheliomas of the face had not received treatment because he declined to follow the advice of the detection center clinicians and his physician

In table 5 will be noted the results of the follow-up of 412 persons in whom major conditions other than cancer were found for which prompt medical attention was urged This group included those in whom cancer might subsequently be found, although its detection in the center was not possible because of the limited scope of the examination In 405 persons (88 3 per cent) the diagnosis made in the center was confirmed by the physician, in 7 (1 7 per cent) the diagnosis was changed to cancer These results represent an important by-product of the detection center activities

Table 5 also indicates the result of the follow-up of 1,060 persons with minor conditions for which medical attention was recommended In 1,053 (99 3 per cent) the diagnosis was confirmed by the physician, and in 7 (0 7 per cent) a diagnosis of cancer was made

In the 412 persons with major conditions, the sites of the seven carcinomas were the cervix, the glands of the neck with no primary focus, the body of the uterus, the liver, the esophagus, the pancreas and the skin In the 1,060 persons with minor conditions the sites of the cancers were the ovary (in 2 persons), the stomach, the brain, the cervix, the fundus of the uterus and the skin (melanoma)

From the foregoing analysis it is clear that in persons with major conditions the proportion of cancers subsequently found by the physician (1 7 per cent) was more than double the proportion ultimately discovered in those with minor conditions (0 7 per cent)

It is recalled that a total of 46 cancers were found originally in these centers in 8,152 examinees It has been observed that 14 additional cases were reported subsequently in 3,299 persons who were successfully followed If the same rate should prevail in the remaining 4,853 persons on whom reports have not yet been received, 21 other cases would be added If one adds to these 14 real and 21 theoretic cases the 46 cancers originally discovered, there would be a total of 81 carcinomas detected in 8,153 examinees This represents a potential case-finding rate of approximately 1 0 per cent

APPRAISAL OF THE PROGRAM

A Case-Finding Procedure—The percentage of cancers discovered in presumably well persons in all age groups has varied with reports from different parts of this country, but in general the figure ranges from 0 5 to 1 0 per cent Although this proportion is relatively low, many early, asymptomatic cancers have been brought to light in detection centers One scarcely can question the value of discovering an early lesion with a favorable diagnosis

Incidental Observations—In addition to the discovery of cancer it has been found that the detection center examination of comprehensive scope discloses many other important conditions influencing the well-being of apparently healthy persons In our series, 44 per cent of men and 47 per cent of women were referred to their physicians for medical attention Approximately 10 per cent of these persons had conditions which were regarded as being of a serious nature, while the remainder appeared to be of lesser importance

In the majority of instances the persons referred to physicians received prompt and competent medical service It has been reported, however, that in a small but not insignificant number of cases, the physician made light of the findings of the detection center examiner and did not take the time to examine the patient or to refer him to another physician An additional unfortunate by-product is that a number of unnecessary surgical operations appear to have been performed for minor conditions Although the incidence of such operations is low and, so far as is known, serious consequences have not ensued, these reports have been a cause for concern

Influence on Local Medical Standards—It has been emphasized that examinations at detection centers must be thoroughly and competently performed The examinees discuss the scope and details of the examination with their relatives and friends There is intense public interest in the program In many centers appointments are booked three to twelve months in advance It would be impracticable and inappropriate to attempt to meet the demand It is considered much more important to encourage the wider use of a general physical examination by local physicians

The examination of 10 persons per month in a given community covers an infinitesimal part of the population, but its influence can assume much greater proportions Detection centers have come to be regarded as demonstrations of the physical examination of general scope, rather than a method of screening the population for a specific disease These centers serve to remind the population that a thorough physical examination is an important procedure and that this type of service should be obtained in the offices of physicians

The creation of a demand for a careful physical examination seems certain eventually to result in higher standards of medical service in that community Indeed in a number of localities there is increasing evidence of interest on the part of physicians in their expressed desire to include examinations of this type in the routine of their practice The number of requests by physicians for copies of the examination records in use in the cancer detection centers is regarded as concrete evidence of this awakening interest

It has been considered much more important to examine a few persons carefully and well than to attempt to screen large numbers of persons quickly and inadequately For this reason, therefore, any attempt to simplify the examination for cancer or to restrict it to certain sites in our opinion seriously decreases the value of this program

Creation of Cancerophobia—Before the inauguration of this program, the possibility of creating cancerophobia was carefully considered by those responsible for its direction It was believed that the program should be conducted in such a way as to allay the fears of those who think they have cancer and to avoid, so far as possible, the stimulation of fears in others We have observed, and our examiners frequently have reported that the large majority of examinees are not hysterical but calm, well balanced persons who believe that they are exercising good judgment in undergoing a physical examination

To determine conclusively whether the program actually is creating cancerophobia would require much more detailed study than we have been able to make This subject, however, has been given a considerable amount of attention As yet, we have not noted a single case of what might be termed cancerophobia which did not exist, either in its current form or in some other type of phobia, prior to the beginning of the program. In those cases which have come to our attention, the receipt of a negative report seemed to decrease the sense of fear. We strongly suspect, however, that such persons promptly transferred their anxiety to some other field. In the light of our experience, therefore, we cannot subscribe to the point of view that detection centers create cancerophobia.

Relation of Detection Centers to Private Practice.—To some it might appear that the offering of free examinations to apparently well persons is an invasion of the prerogatives of the private practitioner. Such a program may appear even more menacing when it is recalled that the patient is admitted to the center voluntarily and without the formality of being referred by a physician. As the program has developed, however, the following points have become increasingly clear:

(*a*) The centers serve as demonstrations providing careful and comprehensive examinations for a few persons, and create in that community a demand for periodic physical examinations.

(*b*) The centers have demonstrated that in a large proportion of presumably well persons there exist a significant number of lesions of early cancer and a high proportion of other important conditions, many of which require prompt medical attention.

(*c*) Treatment is not provided in these centers, and every patient with significant abnormality is referred to a private physician for further study.

(*d*) Instead of diminishing the medical care needs of the community, the program creates demand for medical service which did not previously exist.

Cost of the Program.—The cost of discovering a single cancer is frequently advanced as criterion for evaluating a new service of this type. During the fiscal year Sept. 1, 1947 to Aug. 31, 1948, 3,639 persons were examined in detection centers at a cost to the cancer society of $29,475.90, or $8.10 per person. The cost to the health department is difficult to determine, because many of the services rendered are incidental to other functions of that agency, but the total is believed to be at least equal to that of the cancer society. This brings the estimated cost to about $16.20 per person. No charge was made to the person examined. During this same period 17 cancers were found in the centers at a cost to the society and the department of approximately $3,468 per case. From the point of view of these 17 persons in whom early cancer with a favorable prognosis was detected, the cost undoubtedly would not be considered too high. Whether this expenditure per discovered case is high or low, however, cannot be determined in the absence of figures for comparable programs.

If the cost per discovered case were the only criterion of the value of the cancer detection center, the expense involved might be considered excessive or even prohibitive. It is important to note, however, that there are other tangible benefits, including the discovery of additional carcinomas in persons referred to their family physician for further study and the discovery of other conditions of sufficient importance to justify referral for advice and treatment.

In considering the cost of case finding, the essential question is whether the funds could be spent to better advantage in some other phase of a program designed to gain control of cancer. When more effective technics for public education have been evolved and more satisfactory screening tests for cancer have been developed, it is entirely possible that it may be decided that detection centers are too expensive to operate, particularly if their only objective is to discover cancer. In the meantime, in the absence of a less expensive and more efficient procedure, we believe that we should continue to utilize for case finding the general physical examination in cancer detection centers and in the offices of private physicians.

EXFOLIATIVE DERMATITIS AND HEPATITIS DUE TO PHENOBARBITAL

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Phenobarbital, which was introduced clinically in 1911, is still one of the most frequently prescribed drugs in the United States. The fact that it can provoke an extremely severe and grave reaction may be easily overlooked by the busy practitioner, who is more aware of its great clinical utility. That it does so on relatively rare occasions (considering the vast amounts of it which are used) is most fortunate. Nevertheless, the literature contains numerous reports of a wide variety of eruptions attributed to phenobarbital; these include the generalized morbilliform or scarlatiniform rash, the bullous erythema multiforme, the discrete coin-sized violaceous macules of the "fixed eruption" type, urticaria and the generalized or universal exfoliative dermatitis, which may be fatal. It is clear, then, that every physician who prescribes this drug (or any other barbiturate) should be familiar with and constantly on the watch for the early warning signs of intolerance. Although a cutaneous eruption is often the first such sign, visceral involvement does occur and should always be considered. The following case illustrates a profound cutaneous and visceral reaction which progressed to an almost fatal climax; this might have been avoided had the significance of the skin eruption been recognized earlier.

REPORT OF CASE

Mrs. B. F. M., a white housewife aged 25, three months pregnant, was admitted to the hospital for emergency treatment on the evening of Aug. 14, 1949. Her chief complaint pertained to a generalized skin eruption, which had started as a moderately red rash on her face about August 1. During the next few days it had spread rapidly over the scalp, chest and back, and it soon covered her body and extremities. Swelling of the face, eyelids, arms and ankles developed next. Severe itching, universal erythema and exfoliation followed. Calamine lotion and other locally applied preparations had given no relief; for several days prior to her admission her temperature had risen to between 103 and 104 F., and she was manifestly extremely ill.

Additional information obtained from her family physician revealed that she had been given ½ grain (0.03 Gm.) of phenobarbital before each meal (three times daily) from June 21 until August 6 (for nausea and vomiting of early pregnancy). One week after the onset of the rash this dosage was discontinued, but she was subsequently given 1½ grains (0.09 Gm.) of pentobarbital sodium to be taken at bedtime, and she had taken at least six such doses. A week after the rash appeared, she was also given twelve 100,000 unit tablets of an oral penicillin preparation and 50 mg. of tripelennamine hydrochloride three times daily. No other drug had been taken so far as could be learned. The only additional symptoms were shortness of breath and blood-tinged diarrhea on one occasion.

On admission the patient appeared to be extremely ill; her temperature was 102.6 F. She presented a universal erythroderma, the skin being a dusky, purplish red, exfoliating generally in small flakes and oozing a serous exudate from the face, neck, arms and ankles, where the edema was most pro-

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Dr. Parks M. King, who saw this patient soon after her admission to the hospital, gave permission to report this case.

nounced Deep injection of the buccal and pharyngeal mucosa was noted Additional pertinent observations were copious purulent exudate from the conjunctivas, moist rales in both lower lung fields, pitting edema of the ankles and feet, palpable spleen 2 fingerbreadths below the left costal margin, palpable and tender liver edge and generalized lymphadenopathy The lower part of the abdomen was rounded, with the pregnant uterus extending about half way to the umbilicus

Examination of the peripheral blood on the day after admission showed 73,500 leukocytes per cubic millimeter, of these, 32 per cent were eosinophils, 26 per cent neutrophils, 40 per cent lymphocytes and 2 per cent monocytes, 2 nucleated red blood cells were noted There were 4 330,000 erythrocytes, and the hemoglobin was 85 per cent The urine was normal, the specific gravity was 1 027 The Kline serologic test was negative. The clinical impression at this point was that the patient had an unusually severe sensitization phenomenon due to phenobarbital (and aggravated by pentobarbital sodium) or a blood dyscrasia of the leukemia-lymphoblastoma group

Initial treatment included (1) diphenhydramine hydrochloride, 20 mg intramuscularly every eight hours and 50 mg orally every four hours, (2) sodium thiosulfate 0 5 Gm enteric-coated tablet three times daily by mouth (several days later it was possible to give 1 0 Gm. intravenously daily), (3) vitamin B complex with ascorbic acid (vitamin C), intramuscularly at first, intravenously later, (4) dextrose, 1,000 cc of a 5 per cent solution, intravenously daily, starting on the third day, (5) meperidine hydrochloride, 50 mg at bedtime, (6) acetylsalicylic acid, 10 grains (0 65 Gm) three times daily during febrile period, and (7) a high carbohydrate, high protein, low fat diet All barbiturates and penicillin were avoided.

Medicaments applied to the skin included 1 15 aluminum acetate (Burow's) solution as wet dressings to the exudative areas, colloidal (starch and sodium bicarbonate) wet packs, several bland (softening) creams and an emollient skin oil[1]

The patient sustained a severe chill and temperature up to 104.2 F on each of the first three days in the hospital, for the next two weeks her temperature ranged from 98 to 100 F but thereafter remained normal The condition of her skin improved remarkably during the first five days, and her total leukocyte count fell rapidly (see the accompanying table) On the sixth hospital day a slight icteric tint of the scleras was first noted An icterus index determination made the following morning was 37, within three days a peak of 90 was reached (table), and the skin was deeply jaundiced The liver edge descended to 3 fingerbreadths below the right costal margin and became more tender, bile was present in the urine The possibilities of acute necrosis of the liver and of infectious hepatitis were considered Dr Monroe Gilmour and Dr H H Hodges, consultants recommended the following additional therapy, which was instituted on August 21 (1) choline, 7 5 grains (0 5 Gm) three times daily, (2) methionine, 10 grains (0 6 Gm) three times daily, (3) brewers yeast powder, ½ ounce (15 Gm) three times daily, and (4) 10 per cent dextrose solution intravenously, 1 000 cc daily

Serum protein determination on August 21 showed 5 1 Gm per hundred cubic centimeters of total protein, of which 1 9 Gm was albumin, and 3 2 Gm globulin a ratio of 1 1 6 To make up for this critical albumin deficiency, the patient was given 100 cc. of normal serum albumin (human) concentrate, salt poor, (1 unit of the American Red Cross Blood Center preparation) intravenously daily for seven days, on the suggestion of Dr Walter Summerville, pathologist for the hospital A satisfactory response to this was obtained on August 29 the total protein was 7 7 Gm per hundred cubic centimeters, with 2 7 Gm albumin and 5 0 Gm globulin, a ratio of 1 1 8 Additional laboratory data included a prothrombin time of 44 seconds (Quick method) and a heterophil antibody titer positive in 1 32 dilution, examination of the stools showed no ova, amebas or cysts, and the stool culture for organisms of the typhoid group was negative. On August 20, 2 nucleated erythrocytes, an occasional myelocyte and an occasional large unidentified cell were noted in the blood smear No abnormal cells were found on any subsequent examination

While the jaundice was at its height the patient was somewhat drowsy and apathetic but never comatose General clinical improvement began as soon as the icterus index level began to fall (table) The only other complication was an abscess of the right arm (presumably at the site of a hypodermic injection) With the help of roentgen therapy this was localized, and, when fluctuant, a large amount of pus was obtained by surgical drainage on Sept 2, 1949 Satisfactory involution and healing of the arm ensued By this time the patient was ambulatory, and her skin condition was much improved Although exfoliation had ceased and the edema had subsided, there was still some pruritus of the neck, arms and legs, these areas were treated with superficial roentgen therapy on several occasions

By September 12, the patient's icterus index had descended to 20 and she was allowed to leave the hospital Final check-up examination at the office on September 19 showed that the skin was entirely clear, the icterus index was 6 5, total leukocytes 10 650 per cubic millimeter, and the hemoglobin measured 70 per cent (Sahli) On September 23 she was examined by her family physician, who found that her pregnancy was progressing satisfactorily, his laboratory reported a total leukocyte count of 15,200 per cubic millimeter, with 13 per cent eosinophils, 3,650,000 red blood cells and Rh-positive blood. He was advised specifically to avoid the use of all barbiturates in her case

Peripheral Blood Counts and Icterus Index

		Differential *					
Date	W B C	N	E	B	L	M	Icterus Index
8/15	73 500	26	32		40	2	
8/16	48 800	47	35	1	15	2	
8/17	54 000	20	24	1	54	1	
8/18	40 500	37	10		46	7	
8/20	45,500	41	9	1	45	2	37
8/21	37 600	60	14		26		66
8/22	23 100	42	19		39		80
8/23	18 000	48	20		32		90
8/24	14 000	45	22		33		85
8/25	15 700	69	3		28		49
8/26	13 000	52	15		33		39
8/27	13 000	53	13	1	33		
8/28	14 700	63	9		26	2	39
8/29	15 700	62	8		28	2	29
8/31	15 200	71	2	1	26		
9/ 2	18 500	72	4		25	1	36
9/ 6	11 400						14
9/12	10 400	50	24		20	6	20

* The letters indicate N neutrophils, E eosinophils, B basophils L lymphocytes and M monocytes

COMMENT

The occurrence of a universal exfoliative dermatitis in a young pregnant woman, coupled with a leukocytosis and eosinophilia of serious magnitude and jaundice of severe degree provided a clinical picture which focused attention on the visceral (as well as the cutaneous) manifestations of what is believed to have been a phenobarbital reaction

Although generalized exfoliative dermatitis can be caused by diseases such as psoriasis, the lymphoblastomas and pityriasis rubra (Hebra), it is more commonly caused by the administration of drugs containing arsenic or gold and by the barbiturates and the sulfonamide compounds (A few cases have been ascribed to penicillin) Since phenobarbital was the only drug taken by the patient prior to the onset of the eruption which was potentially capable of producing this condition, it was first in etiologic consideration The pronounced leukocytosis and eosinophilia made it necessary also to consider leukemia or one of the related lymphoblastomas, but these were soon ruled out by the rapid daily improvement in the peripheral blood

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[1] The skin oil contained an emulsion of neutral aliphatic hydrocarbons in water with wool fat cholesterols

The incrimination of phenobarbital, then, as the causative agent was arrived at chiefly by elimination (as has been the case in virtually all the reports in the literature) Skin tests are known to be inconclusive, it was believed that it would be unsafe in this instance to give the patient a "test dose" (after the skin had cleared) If one doubts that such a severe reaction can be produced by taking ½ grain (30 mg) of phenobarbital three times daily for six weeks, one is referred to Brunsting's report of death in a patient who had taken ¼ grain (15 mg) three times daily for only ten days [2] In one of the fatal cases reported by Sweitzer and Laymon,[3] the patient noticed a generalized eruption after taking pentobarbital sodium for four days, she died as a result of anuria and pulmonary edema The sudden onset of a rapidly progressive jaundice and the critical depletion of serum albumin are not usually considered common complications of phenobarbital sensitization (They are not uncommon, of course, in arsenical reactions) In 1936, however, Birch reported a case of jaundice due to phenobarbital,[4] and the literature contains a number of reports of exfoliative dermatitis due to phenobarbital in which visceral lesions such as fatty degeneration of the liver, acute inflammatory changes around the portal canals, cloudy swelling of the kidneys and squamous cell metaplasia of the pancreas were noted [5] The *internists who saw this patient in consultation concluded that the condition of the liver was part of a general hyperergic reaction and not infectious or toxic in origin* Bronchopneumonia is the commonest terminal complication, hemorrhagic encephalitis has been reported Exfoliation of the esophageal, laryngeal, tracheal, bronchial, renal pelvic and ureteral mucosa has been described by Sexton, Pike and Nielson [6] and by Poole,[7] and I have observed this in 1 patient (not reported)

It is known that hyperemesis gravidarum can cause many of the symptoms which this patient had (with the exception of exfoliative dermatitis) However, vomiting had almost ceased before this patient's eruption began, and it occurred on few occasions during her hospitalization

The combination of eosinophilia and jaundice brings to mind the possibility of periarteritis nodosa Rich and Gregory [8] produced this disease experimentally (in rabbits) by establishing a condition analogous to serum sickness, and they have reported its development as a result of hypersensitive reaction following foreign serum and sulfonamide therapy In a survey of 200 cases, Ketron and Bernstein [9] found cutaneous involvement in 25 per cent Purpuric lesions and nodules in the skin or subcutaneous tissue were the usual manifestations, exfoliative dermatitis was not noted Although biopsy was not done on the patient reported herein, she did not exhibit the diagnostic tetrad of Meyer and Brinkman (chlorotic marasmus, polyneuritis and polymyositis, vague gastrointestinal disturbances and nephritis) [10]

An intriguing clinical coincidence was provided when it was realized that the jaundice began to subside the day after diphenhydramine hydrochloride therapy had been discontinued (The possibility that diphenhydramine might have some adverse effect on the liver had been considered, but the drug was discontinued chiefly because the patient's skin condition and leukocytosis had improved, and it was deemed advisable to decrease in some measure the large amount of medicine being administered)

SUMMARY AND CONCLUSION

1 An almost fatal sensitization reaction to phenobarbital, which was manifest by universal exfoliative dermatitis, decided leukocytosis, severe jaundice and depletion of serum albumin with reversal of the albumin/globulin ratio, is reported

2 Death in patients with exfoliative dermatitis caused by phenobarbital is probably due to (1) failure to discontinue the drug as soon as any eruption begins and (2) failure to recognize early and to treat adequately the associated visceral involvement

3 Whenever phenobarbital (or any other barbiturate) is prescribed, the patient should be instructed to discontinue the drug as soon as any skin eruption appears and to report to the physician Likewise, in the presence of any new cutaneous eruption, the physician should withdraw the drug until he has made sure that the rash is not due to phenobarbital

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[2] Brunsting, L A Dermatitis Medicamentosa Idiosyncrasy to Quinine Phenolphthalein and Phenobarbital, Proc Staff Meet Mayo Clin **7** 618 1932

[3] Sweitzer, S E and Laymon C W Severe Cutaneous Reactions to the Barbiturates *Minnesota Med* **20** 92 1937

[4] Birch, C A. Jaundice Due to Phenobarbital Lancet **1** 478 *1936*

[5] Wile, U J, and Benson, J A Exfoliative Dermatitis Due to Phenobarbital with Fatal Outcome Report of Two Cases, Ann Int. Med **13** 1243 (Jan) 1940 Winer, N J, and Baer R L Exfoliative Dermatitis Due to Phenobarbital A Clinical and *Postmortem Study of a* Case, with a Review of the Literature on Visceral Lesions in Cases of Drug Eruptions, Arch Dermat & Syph **43** 473 (March) 1941 Moss, R E, and Long W E Toxic Eruptions Due to Phenobarbital Report of Two Cases, ibid **46** 386 (Sept) 1942

[6] Sexton, D L., Pike G E and Nielson, A Exfoliative Dermatitis and Death Due to Phenobarbital, J A M A **116** 700 (Feb 22) 1941

[7] Poole A K Drug Reactions from Barbital and Phenobarbital, Yale J Biol & Med **1** 345 1929

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[9] Ketron L W, and Bernstein, J C Cutaneous Manifestations of Periarteritis Nodosa Arch Dermat & Syph **40** 929 (Dec) 1939

[10] Middleton W S Infectious *Arteritis Ann Int* Med **29** 1093 1948

Clinical Notes, Suggestions and New Instruments

INFECTIOUS MONONUCLEOSIS AND POLYNEURITIS (GUILLAIN-BARRÉ SYNDROME)

Report of a Case of Facial Diplegia Treated with 2,3 Dimercaptopropanol (BAL)

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Involvement of the central nervous system and peripheral neuropathy have been reported in association with many diseases, especially during the postinfectious stage of contagious diseases of bacterial and viral origin They have also been reported in connection with heavy metal intoxication and with vitamin B deficiency Polyneuritis of the Guillain-Barre type with facial diplegia, extensive peripheral neuropathy and albuminocytologic dissociation of the cerebrospinal fluid associated with infectious mononucleosis is unusual enough to attract attention I have made no attempt to review the entire literature on infectious mononucleosis The articles which have been *read leave one* with the impression that the Guillain-Barre syndrome *associated* with infectious mononucleosis either does *not occur often or* is not reported

In 1943 Hiller and Fox [1] reported a case of infectious neuronitis associated with mononucleosis Ricker, Blumberg, Peters and Widerman [2] reviewed the literature in 1947 They were able to find 1 case of the Guillain Barre syndrome associated with infectious mononucleosis, and they reported 2 additional cases with fatal termination In 1948 Custer and Smith[3] described the pathologic changes produced by infectious mononucleosis. Their report showed the extensive involvement of the various organs and tissues which follows the disease Dolgopol and Husson[4] in 1949 reported a fatal case of infectious mononucleosis with neurologic complications The latest report to come to my attention is that of Graham, Schwartz and Chapman.[5] These authors described a case of infectious neuronitis complicating infectious mononucleosis which showed many features similar to those of the case reported here.

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[1] Hiller R I, and Fox, M J Infectious Neuronitis Associated with Infectious Mononucleosis Marquette M Rev **7** *152 154* (Feb) 1943

[2] Ricker W, Blumberg A, Peters C H and Widerman, A Association of Guillain Barré Syndrome with Infectious *Mononucleosis* Blood **2** 217 226 (May) *1947*

Because of the apparent rarity of this condition and because of rapid improvement after the use of 2 3 dimercaptopropanol, (BAL), the following case is being reported.

REPORT OF A CASE

B B, a 17 year old high school girl, was first seen by me on Jan 13, 1949, after she had been admitted to the Bridgeport Hospital. She had been referred by an otolaryngologist, who made the diagnosis of infectious mononucleosis on the basis of sore throat, swollen glands and a blood smear which showed many atypical lymphocytes The patient had been ill at home since January 4 with a griplike syndrome One week before her admission a sore throat developed, and she had been treated by her family physician with penicillin and sulfonamide drugs, without improvement. The day before admission the sore throat became severe and hospitalization was advised

Physical Examination—Examination showed a well developed, fairly well nourished girl of 17 years She did not appear too ill and, except for the sore throat was in no apparent distress The temperature was 101 F, pulse rate 100 and respiratory rate 20 The pharynx was injected. The soft palate showed numerous petechiae The tonsils were large and infected and covered with a thick dirty gray membrane The anterior and posterior cervical lymph nodes were enlarged and tender The heart and lungs were normal The liver and spleen could not be felt, and reflexes were normal

Laboratory examination gave the following results A throat culture was negative for diphtheria and showed Aerobacter aerogenes The urine was normal except for a trace of albumin On January 13 the hemoglobin content was 10.25 Gm, the red blood cell count 3,500,000, the white blood cell count 16 750 and the polymorphonuclear cell value 12 per cent. There were 68 per cent lymphocytes, with 20 per cent atypical lymphocytes On January 14 the white blood cell count was 18 300, with 8 per cent polymorphonuclear cells, 18 per cent lymphocytes, 64 per cent atypical lymphocytes 9 per cent mononuclear cells and 1 per cent basophils On January 17 the hemoglobin was 11 65 Gm, the red blood cells 4,530,000 and the white blood cells 12,600 with 18 per cent polymorphonuclear cells, 12 per cent lymphocytes, 64 per cent atypical lymphocytes, 5 per cent mononuclear cells and 1 per cent basophils. On January 21 the white blood cells numbered 7,500, with 32 per cent polymorphonuclear cells, 28 per cent lymphocytes, 27 per cent atypical lymphocytes, 12 per cent mononuclear cells and 1 per cent eosinophils On January 19 the heterophil antibody reaction was positive in dilution up to 1 1,024

Course in the Hospital—The patient was treated with rest in bed, glucose irrigation of the throat and codeine and cortalex® (adrenal cortex steroids and vitamin C) Three days after her admission the temperature became normal, and it remained so By January 19 the throat had improved, the membrane was gone, the glands were less tender and the patient was allowed to be up and about. On January 21 she was feeling well, the throat was entirely clear and appetite and strength were returning rapidly She complained of slight pain in the left calf muscles but nothing unusual was noted and she was allowed to go home.

Subsequent Progress—The day after her discharge, the mother reported that the patient was having difficulty in using her legs and in standing She was examined at home, where she gave the following history When she was discharged from the hospital, she had some pain in the left calf and had trouble getting into an automobile She attributed this to weakness from her illness, but when she got home she had to be helped up the stairs and she noted difficulty in standing The following day she noticed increasing weakness of her legs and difficulty in walking and standing The left leg was weaker than the right When lying down, she was able to raise the right leg but not the left one, and she also had difficulty sitting up

Examination showed a temperature of 98 6 F, and a pulse rate of 72 The heart and lungs were normal The left calf muscles were tender to pressure The patient was able to flex and extend the leg at the knee but unable to raise it off the bed She could raise the right leg but could not sit up without assistance When helped to her feet, she was able to stand with support, and she could walk but tired easily There was no weakness of the abdominal or thoracic muscles or of the arms There were slight stiffness and tenderness of the neck The abdominal reflexes and knee jerks were absent There was slight decrease of sensation to pin prick of both legs, which were drenched with perspiration A tentative diagnosis of peripheral neuritis was made The patient was ordered back to bed and administration of vitamin B started.

The following day she was again seen at home There was an increase in the paralysis of the legs There was in addition partial paralysis of both arms facial diplegia and paralysis of the right side of the palate, with a distinct nasal twang to the voice The patient complained of a headache and had stiffness of the neck Because of the rapid progression of an ascending type of paralysis and of the possibility that poliomyelitis was present, she was examined by a neurologist, who agreed with the diagnosis of polyneuritis

Physical Examination After Readmission—The possibility of respiratory paralysis was discussed, and the patient was readmitted to the Bridgeport Hospital, where a respirator was available On January 23 examination showed the patient to be acutely ill The temperature was 98 6 F, the pulse rate 114, the respiratory rate 24 and the blood pressure 136 systolic and 100 diastolic. She was unable to stand or walk, and she spoke with a distinct nasal twang She complained of pains in both legs and tingling sensations in her hands and feet Both hands and feet were damp with perspiration She was unable to move the upper lip because of stiffness, but she could open her mouth when urged to do so The face was expressionless, and she could not smile or curl up the angles of the mouth, whistle or wrinkle her forehead There was interference with speech because of the facial and palatal paralysis She was unable to close her eyes completely, the ocular movements and pupils were normal The neck showed slight rigidity, and a few nontender, pea-sized glands were present The heart and lungs were normal, and the chest and abdomen showed no evidence of paralysis The liver and spleen could not be felt No weakness of the diaphragm was apparent. There was some stiffness of the back, and the patient was unable to sit up without assistance. She could move her arms and legs but was unable to raise her legs off the bed. There was diminished sensation to pinprick below the knees All the deep reflexes and abdominal reflexes were absent.

Lumbar puncture showed a clear fluid, the pressure being 80 mm of water Pandy's test gave a strongly positive reaction. The total protein was 168 mg per hundred cubic centimeters, sugar 66 mg, and chlorides 732 mg There were no cells Smear and culture gave negative results The colloidal gold type 2 curve was 34454 A serologic test gave negative results

On January 25 the heterophil agglutination titer was positive in dilution up to 1 1,280 both before and after adsorption with guinea pig kidney (done at Connecticut State Department of Health Laboratories), and on January 26 it was positive in dilution up to 1 512 (done at Bridgeport Hospital) On January 24 the hemoglobin was 12 Gm the red blood cells 4,140,000 and the white blood cells 7,750, with 28 per cent polymorphonuclear cells, 22 per cent lymphocytes, 31 per cent atypical lymphocytes, 13 per cent monocytes, 5 per cent eosinophils and 1 per cent basophils

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[4] Dolgopol V B and Husson G S Infectious Mononucleosis with Neurologic Complication Report of a Fatal Case Arch. Int. Med 83 179 196 (Feb) 1949

[5] Graham S D Schwartz, W H and Chapman W L Infectious Neuronitis Complication Infectious Mononucleosis U S Naval M. Bull 49 914-919 (Sept Oct) 1949

On February 1 the hemoglobin was 13 19 Gm, the red blood cells 5,140,000 and the white blood cells 10,500, with 50 per cent polymorphonuclear cells, 6 per cent eosinophils, 5 per cent monocytes, 1 per cent basophils, 18 per cent lymphocytes, and 20 per cent atypical lymphocytes

On February 17 the hemoglobin was 11 65 Gm, the red blood cells 4,490,000 and the white blood cells 6,350, with 49 per cent polymorphonuclear cells, 31 per cent lymphocytes, 7 per cent atypical lymphocytes, 4 per cent monocytes, 8 per cent eosinophils and 1 per cent basophils

Course in Hospital—The patient was treated with vitamin B and was encouraged to move as much as possible A frame was set up over the bed with bars and slings so that she could help to raise herself and exercise her legs Penicillin was used for the first week as a precaution against secondary infection She got up daily to sit in a chair On January 27 administration of cortalex® was started by mouth Three days after admission, there seemed to be a slight increase in the strength of the legs and arms but no change in the facial muscles For the first time the spleen could be felt, 2 fingerbreadths below the costal margin There also developed a tachycardia (100 to 140), which persisted for three days

On January 30 there was a slight return of motion in facial muscles and strength was returning rapidly in both arms, but there was no further improvement in the legs These were weaker, and deep reflexes were absent

By February 2 the face was much improved, facial expression and motion of facial muscle were almost back to normal The arms had almost completely recovered, but the back was still stiff The patient was unable to raise her legs off the bed, but she could flex the lower part of the leg onto the thigh and then extend it She was unable to stand on her legs while in a walker Deep reflexes were absent Speech had returned to normal, and she was able to swallow without difficulty

By February 6, in spite of early active and passive movements, the legs had not improved, and the hamstring muscles were becoming tight At this time my attention was called to a report by Furmanski[6] on the therapy of peripheral neuropathies with 2,3 dimercaptopropanol Because the patient was not improving, it was decided to try this preparation in the dosage, recommended by Furmanski,[6] of 1 5 mg per kilogram The patient's weight was approximately 55 Kg, and on February 27 she was given 75 mg of 2,3 dimercaptopropanol intramuscularly and again on February 8 From February 10 through February 18 she was given 90 mg daily intramuscularly

On February 11 the patient was able to raise her legs slightly off the bed On February 14 anesthesia was induced by intravenous injection of thiopental sodium and the hamstring and back muscles were stretched On February 16 she was able to raise her legs high off the bed and to stand in the walker and take a few steps with assistance By February 20 remarkable improvement was evident She was able to raise both legs high off the bed against gravity and to sit up from the supine position with slight assistance She could walk for the first time without the walker by supporting herself on the arm of a nurse Administration of 2,3 dimercaptopropanol was discontinued on February 19 A total of 1 125 Gm had been given By February 24 the patient was able to walk with crutches or by supporting herself on a nurse The upper extremities appeared normal, sensation was normal, but reflexes were still absent

On February 27 anesthesia with thiopental sodium was again used, and hamstring and back muscles were stretched

The patient was discharged from the hospital on February 27 She was able to get around with the assistance of a cane Her gait was somewhat unsteady but stronger, and she was able to stand erect The paralysis of the face and arms was gone There was still weakness of the leg muscles, and all deep reflexes were absent

After her discharge from the hospital, the patient was able to be up and about her home, and by March 7 she was again able to go up and down stairs and to walk unassisted On March 18 slight weakness of the leg muscles and stiffness of the hamstring muscles were still present and all deep reflexes were absent On March 21 she returned to school On April 29 she was well, and the hamstring muscles were normal Abdominal reflexes had returned, but the triceps, knee and ankle jerk were still absent No paralysis was present, and the patient was able to attend school full time and in addition work part time as a salesgirl

COMMENT

The case presented has all the features of infectious mononucleosis The clinical picture, the blood picture and the strongly positive heterophil agglutination reaction are typical of this disease The neurologic manifestations are those of polyneuritis and the so-called Guillain-Barre syndrome, as evidenced by the multiple involvement of peripheral nerves and an ascending type of paralysis, with spinal fluid which contained a high protein content and no cells

With the usual supportive measures, vitamins, active and passive exercises and physical therapy, the patient improved up to a certain point and then her progress ceased The condition of her legs was not improving until administration of 2,3 dimercaptopropanol was started, and from that time on improvement was rapid Whether or not this improvement was due to coincidence is hard to say, but it is my impression that it was more rapid than could have been anticipated from the natural course of the disease

The theory proposed by Furmanski[6] that initially neuropathies are reversible biochemical disorders of the neuron, that no structural changes of degeneration occur and that 2,3 dimercaptopropanol has the ability to restore disrupted cellular metabolism by its action on enzyme system is an interesting one and should be subjected to further investigation The case reported may help to support his contention, since improvement started shortly after administration of this compound was started

SUMMARY

A case of infectious mononucleosis associated with the Guillain-Barre syndrome is reported Rapid improvement followed the addition of 2,3 dimercaptopropanol (BAL) to the usual treatment

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Council on Foods and Nutrition

This paper was prepared at the request of the Council and is one of a series appearing in THE JOURNAL *In the near future the entire series will appear in book form as the Council's Handbook of Nutrition* JAMES R WILSON, M D, *Secretary*

FAT-SOLUBLE VITAMINS A, E AND K

HUGH R BUTT, M D
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VITAMIN A

Chemistry—Vitamin A is a colorless, fat-soluble vitamin Karrer and associates isolated it in 1931 and determined its structure, but effective syntheses of vitamin A were achieved by Milas[1] and others only during the last five years

The vitamin is an alcohol and hence is not itself saponifiable Evidence has been presented indicating that vitamin A occurs in more than one form The form that predominates in the tissues of salt water fish and mammals has been designated as vitamin A_1 and the form which predominates in the tissues of fresh water fishes as vitamin A_2 Both forms appear to exert similar functions, although vitamin A_1 is considerably more effective in mammals than vitamin A_2

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From the Division of Medicine Mayo Clinic Rochester

[1] Milas, N A Synthesis of Biologically Active Vitamin A Substances Science **103**: 581 (May 10) 1946

The international unit of vitamin A has been fixed as the activity of 0 6 micrograms of pure beta-carotene This, dissolved in a vegetable oil at such concentration that 1 Gm contains 0 3 mg of beta-carotene, constitutes the international standard preparation of vitamin A One international unit of vitamin A is contained, therefore, in every 2 mg of the international standard preparation

Vitamin A is fairly stable to heat, is not appreciably soluble in water and is destroyed by oxidation The structural formula of vitamin A is shown in figure 1

During early experimental work on the promotion of growth it soon became evident that some relationship existed between the fat-soluble vitamin A and the presence of plant pigments, but it was not until 1930 that it was generally realized that carotene possessed growth-promoting activity It is known now that much of the vitamin A man receives from his food occurs in the form of its precursors, the yellow and red carotenoid pigments (provitamins)

These provitamins, called "carotenoids," are extremely sensitive to oxidation and light but are quite stable to heat Little is known of their biogenesis, and none have been synthesized The beta form is apparently the most active precursor, and its activity seems to depend on the presence of the beta-ionone ring

Although its exact function is unknown, carotene is important in the physiologic processes of plants It is associated closely with chlorophyll, although it is not lost when chlorophyll disappears at the time of the yellowing of the leaves However, it has been destroyed completely by the time the leaves are dry and dead

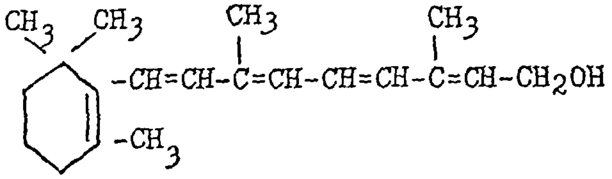
Fig 1.—The structural formula of vitamin A.

Sources—Vitamin A is present only in the animal organism Fish liver oils are the richest source, but milk, butter, margarine fortified with vitamin A and egg yolks are also rich sources Human milk is a good source of vitamin A and carotene The colostrum from the human breast has from two to three times as much biologic vitamin A activity as milk secreted soon after parturition, and this human milk has from five to ten times the biologic vitamin A activity of cow's milk One can increase the content by giving supplementary vitamin A to the mother,[2] but from data at hand it seems that the best method of vitamin A therapy, when the object is to give the child a reserve of the vitamin, is to give it directly

Because of its chemical properties, foods which are heated for long periods of time lose an appreciable amount of vitamin A Boiling, canning or freezing foods does not cause loss of the vitamin, but drying and dehydration cause considerable loss

Among the best sources of provitamin A are thin, green leaves The exact relationship between the degree of greenness and the content of the provitamin is not understood, but it is well known that the outer green leaves of iceberg lettuce or cabbage are much more potent in provitamin A than are the inner leaves Peas, green beans, green peppers, asparagus and green celery are examples of vegetables known to have a high content of carotene Yellow fruits and vegetables such as carrots, sweet potatoes, apricots, yellow peaches and yellow tomatoes are other examples of rich sources of carotene Nuts and cereal grains, with the exception of those having considerable green or yellow color, are poor sources Yellow corn is the most important source of carotene in this group

Requirements—The minimal requirement for vitamin A in man is still unknown, but in many animals the amount needed has been found to be related to body weight[3] In practice the vitamin A needs of the human body are usually taken care of by the mixture of vitamin A and provitamin A present in the diet It is difficult to calculate the precise vitamin A value of individual precursors for the simple reason that the precursors do not always yield their theoretic vitamin A values Dr Lela Booher and her co-workers[4] in a study of beta-carotene and vitamin A requirements, observed that it took, on an average, 73 per cent more of beta-carotene (in oil) than vitamin A as it occurred in cod liver oil to maintain normal dark adaptation after vitamin A depletion It is apparent from these and other reports that the human being utilizes vitamin A from various sources with differing degrees of efficiency Until more is known about the factors surrounding the utilization of provitamin A the precise method of calculating the vitamin A values of ordinary diets will not be known However, it is probably safe to assume that such vegetables as carrots, which are rich in carotene, can be relied on as important sources of vitamin A, even though it may take as much as 4 parts of carotene to supply 1 part of vitamin A As was pointed out in the 1948 revision of the Food and Nutrition Board's "Table of Recommended Dietary Allowances,"[5] it is currently considered that the requirement for vitamin A is from 25 to 55 international units per kilogram of body weight, or 2,000 to 4,000 units of vitamin A per day for the adult, and "twice these amounts or more if the sole source is carotene from foods" The Food and Nutrition Board's recommended daily dietary allowance of vitamin A is given in the accompanying table

Absorption—Vitamin A Since vitamin A is a fat-soluble compound, its absorption may be facilitated by the simultaneous absorption of a certain amount of fat, but there is not universal agreement on this point[6] Most workers feel that the presence of bile is not necessary for proper absorption of the vitamin Absorption of vitamin A reaches its maximum three to five hours after administration

Although apparently some vitamin A is lost in feces, nothing is known of the degree of destruction of the vitamin in the gastrointestinal tract under either normal or pathologic conditions In a case of fistula of the thoracic duct, studies made after administration of vitamin A or carotene by mouth revealed that little carotene passed through the chylous fluid, whereas nearly all the vitamin A could be recovered from it[7]

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In patients with sprue treated with pteroylglutamic acid Fox[8] and Darby and co-workers[9] have shown that serum levels of vitamin A are increased, thus indicating that the function of the intestinal tract and perhaps its ability to absorb vitamin A are affected It has been further demonstrated by Weick and Tsao[10] and Danielson and co-workers[11] that the serum level of vitamin A can be increased both in normal children and in children with cystic fibrosis of the pancreas by the administration of vitamin A to which emulsifiers have been added This preparation seems to give the best results, but caution must be exercised until the safety of the emulsifying agent used has been demonstrated

Carotene Carotene is absorbed less rapidly than vitamin A, and its absorption is subject to several more hazards Proper absorption of carotene requires the presence of bile in the intestinal tract, and, in those conditions in which bile is excluded completely or partially from the intestinal tract or in those instances in which bile salts of good quality are poorly excreted, bile must be given as a supplement in order to insure proper absorption Chronic diarrhea, pancreatic dysfunction, celiac disease or sprue also may inhibit absorption of carotene As with vitamin A, a certain amount of normal absorption of fat also seems necessary for proper transportation of carotene across the intestinal wall It has been shown that liquid petrolatum may inhibit seriously the absorption of carotene

Table of Recommended Daily Dietary Allowances of Vitamin A

	Vitamin A (I U per Day)*
Normal adults	5,000
Pregnancy (latter half)	6,000
Lactation	8,000
Children	
Under 1 year	1,500
1 3	2,000
4-6	2,500
7 9	3,500
10-12	4,500
13 15	5,000
Boys 16-20 years	6,000

* The allowances, as given here, are based on the premise that approximately two thirds of the vitamin A value of the average diet in this country is contributed by carotene and that carotene has half or less than half the value of vitamin A

Maximal concentration of carotene in the blood is reached in seven to eight hours after administration, and the fecal excretion accounts for only a small portion of the unutilized excess The rest apparently finds other channels of excretion or is destroyed in the intestine or elsewhere Under normal conditions the kidney apparently plays no part in the disposition of either vitamin A or its precursors

Storage—The capacity to store vitamin A varies widely in different species of animals The rat has a large capacity for the storage of vitamin A, whereas the rabbit and guinea pig retain little, even when ingesting diets rich in carotene It has been shown that maximum storage of vitamin A in the livers of rats occurs when the vitamin is administered orally rather than parenterally, subcutaneously or intramuscularly[12] Rodahl[13] reported recently that polar bears seem to be capable of storing huge amounts of vitamin A in their livers He found 26,700 and 21,900 international units of vitamin A per gram, respectively, in two specimens of the wet material In fish more vitamin A is deposited in the tunica propria of the mucosa of the intestine than in the liver

In human beings the liver probably stores about 95 per cent of the vitamin A reserve of the body As a rule, the amount stored in the liver is least at birth and during childhood, irrespective of the diet of the mother, and increases gradually with advancing age Examinations of the livers of healthy persons who died suddenly from accidental causes have shown the average vitamin A content of the liver to be between 200 and 400 international units of vitamin A per gram The amount of vitamin A stored in the liver in instances of hypervitaminosis A had not been reported up to the time of writing The exact mechanism by which vitamin A is called forth from reserve storage is not known

Hypervitaminosis A—If large amounts of vegetables rich in carotene are ingested by normal persons or persons suffering from certain diseases, such as diabetes, carotene may accumulate in the skin in amounts sufficiently large to cause a deep yellow color The condition is known as carotenosis and is harmless The yellow color tends to disappear quite promptly on reduction of the carotene intake

As yet, there is no evidence of toxic effect occurring in foods, although it is interesting to note that Eskimos consider the livers of the polar bear and the Greenland fox as poisonous The livers are reported to contain about 25,000 and 12,000 international units, respectively, of vitamin A per gram[14]

In 1944, Josephs[15] published a report of hypervitaminosis A in a 3 year old boy Some two years later Toomey and Morissette[14] reported a case in a 23 month old infant Since that time the condition has been observed and reported from other clinics[16] The condition seems to be due to the regular ingestion of large doses of vitamin A concentrates over a long period Recovery tends to follow the withdrawal of vitamin A supplements

In summarizing the study of his case, Toomey reported the following conditions hepatomegaly, without splenomegaly, increased levels of vitamin A in the serum, increased levels of serum lipids, abnormalities of bones, increased levels of serum phosphate, low levels of serum proteins, sparse, coarse hair, avid appetite for butter, abnormal intake of vitamin A, pain and localized periosteal swellings, recovery from pain when vitamin A is withheld, and prompt recovery after exclusion of vitamin A from the diet

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There is no danger of the development of hypervitaminosis A except when excessively large doses of the concentrate have been ingested over long periods There is a wide zone of safety between the prophylactic and the dangerous doses of vitamin A

(An extensive discussion of vitamin A deficiency appears in chapter 21 of the Handbook of Nutrition)

VITAMIN E

Chemistry—In 1925, Evans and co-workers[17] and Matill demonstrated that vitamin E must be included in the diet of the rat to insure successful reproduction Vitamin E activity is exhibited by at least three naturally occurring compounds They are alpha, beta and gamma-tocopherol All these are fat-soluble substances that are only slightly soluble in water They are stable at high temperatures (200 C) but rapidly lose their activity in the presence of ultraviolet rays or mild oxidizing agents

Because the three tocopherols which have been demonstrated to have vitamin E activity are so closely related, they are all referred to as vitamin E Synthetic racemic tocopherol acetate in olive oil is the international standard preparation of vitamin E The international unit is the vitamin E activity of 1 0 mg of the standard preparation This quantity represents the average amount of the substance which prevents resorption of the fetus when administered to rats deprived of vitamin E

Vitamins E and their esters are easily absorbed from the intestinal tract These vitamins are stored in small amounts in body fats, muscles and the anterior lobe of the pituitary gland Although they are fat soluble they are not distributed according to this chemical property Tissue of the heart and lungs, although it contains relatively small amounts of fat, may contain more of the vitamin E than body fat and much more than the liver[18]

Sources—The animal organism contains only small amounts of vitamin E and finds its richest supply in plant materials, particularly in vegetable oils and green leaves Wheat germ oil is the richest natural source of vitamin E, but the vitamin is also found in considerable quantities in lettuce oil, rice germ oil, cottonseed oil and other seed grain oils Synthetic tocopherols are also available commercially

Requirements Practically nothing is known concerning the requirement of man for vitamin E Comparatively few clinical studies dealing with the role of vitamin E in human physiology have been made, and thus far they have not led to definite conclusions There seems to be agreement that vitamin E is of no value in the treatment of sterility in man In fact, it is not known whether or not manifestations of a real deficiency of the vitamin have ever been observed in man

Physiologic Aspects—Reproductive System The effect on the rat of deprivation of vitamin E is well known In the male it produces irreversible sterility characterized by degeneration of the germinal epithelium, in the female it has been shown that, although gestation starts normally after conception, in moderate deficiency gestation may be prolonged, with the fetus born dead or the newborn rat dying in the postpartum period When there is a pronounced deficiency of vitamin E the fetus may begin to develop normally but later degenerates and dies and may even undergo complete resorption These observations led to the use of the terms "antisterility vitamin" and "reproductive vitamin" Since these terms are not applicable to human nutrition, it is probable that their use should be abandoned

Muscle Metabolism In 1928 Evans and Burr[19] first called attention to the muscular paralysis which developed in the suckling rats of mothers who had a deficiency of vitamin E Since then lesions have been demonstrated in the muscles of rabbits, ducklings, young guinea pigs, hamsters and older rats on diets deficient in vitamin E These lesions may be prevented or cured by the use of tocopherol

Antioxidant Activity Perhaps the most striking chemical property of the vitamins E is their antioxidant activity Recently considerable evidence has accumulated which would indicate that their physiologic actions may be the result of this characteristic Oxygen consumption and carbon dioxide elimination is greatly increased in the dystrophic muscle, and the consumption of oxygen by the dystrophic muscle is reduced dramatically by the administration of tocopherol to the animal or by the addition of tocopherol to the muscle in vitro before the uptake of oxygen is measured Vitamin A and carotene are particularly sensitive to oxidative destruction in the presence of unsaturated fats, and vitamin E apparently offers them considerable protection, both in the cell and in the alimentary tract[20]

Clinical Aspects—Experimental work with animals has stimulated observers to seek ways of applying their information to the problems of clinical medicine. However, there appears to be general agreement that vitamin E is of no value in the treatment of sterility The possibility that it may be of value in the treatment of habitual abortion requires further study Also, although vitamin E has been suggested in the treatment of such degenerative conditions as amyotrophic lateral sclerosis, further work seems to be required to establish the value or lack of value of this vitamin in such conditions It appears that patients with muscular dystrophy have neither a primary lack of vitamin E nor a deficiency secondary to poor absorption or chemical distribution of tocopherol[21] Extensive studies of progressive muscular dystrophy have shown that administration of neither alpha-tocopherol nor wheat germ oil has any effect on the disease in man[22] However, it is still conceivable that in this disorder there may be some interference with intermediate steps in the utilization of alpha-tocopherol Recently, Milhorat and Bartels[23] have suggested that such a defect exists Current evidence does not indicate that vitamin E is useful in the treatment of any primary neurologic disorder

In instances in which patients were given small doses of vitamin E, no toxic reactions have been reported Administration of large doses of wheat germ oil have given rise to only minor symptoms

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[23] Milhorat, A. F and Bartels W E. The Defect in Utilization of Tocopherol in Progressive Muscular Dystrophy Science **101** 93 (Jan. 26) 1945

VITAMIN K

Chemistry—Vitamin K has been shown to be essential to human nutrition[24] Natural vitamin K was first isolated from alfalfa and proved to be 2-methyl-3-phytyl-1,4-naphthoquinone It is a fat-soluble vitamin, easily destroyed by alkali, strong acid, sunlight or artificial light and has been prepared synthetically Another natural vitamin K, vitamin K_2, was first isolated from putrefied fish meal Its exact structure is not known but is suspected to be 2-methyl-3-difarnesyl-1,4-naphthoquinone

Many synthetic substances which possess a quinoid nucleus have vitamin K activity Of all the naphthoquinone derivatives studied which displayed some degree of vitamin K activity, 2-methyl-1,4-naphthoquinone has proved to be the most active Some investigators have found this compound to be three times as potent, on the basis of weight, as vitamin K_1 Because of the usefulness of the compound in clinical medicine the Council on Pharmacy and Chemistry of the American Medical Association authorized "menadione" as a nonproprietary name for this substance The compound is only slightly soluble in water[25] Its structural formula is shown in figure 2

The need for a water-soluble material with vitamin K activity led to the testing of many other compounds

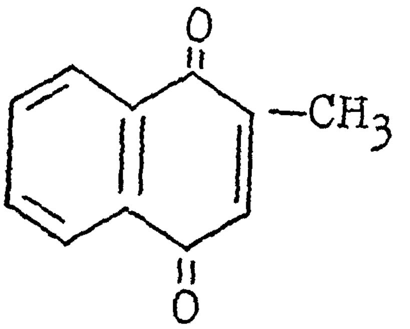

Fig 2 —The structural formula of menadione.

Most of the water-soluble compounds which have vitamin K activity are, basically, 2-methyl-1,4-naphthoquinones or the corresponding hydroquinone Such compounds as 4-amino-2-methyl-1-naphthol hydrochloride and sodium 2-methyl-1,4-naphthohydroquinone-3-sulfonate are water soluble and have been useful in clinical treatment They are not as active as menadione but are sufficiently active to produce the desired clinical results

Sources—Vitamin K is distributed widely in nature, and among its richest sources are green leaves Chlorophyll-bearing parts of the plant usually contain the largest amount of vitamin K Alfalfa and spinach are rich in the vitamin, and cabbage, cauliflower, carrot tops, soy bean oil and seaweed are all good sources In general, seeds, fruits and roots contain considerably less vitamin K than do green leaves Most animal materials contain little vitamin K, milk and eggs contain small amounts However, pork liver is an extremely rich source of this vitamin Vitamin K_2 occurs in many bacteria, whereas yeast, molds and fungi contain little or no vitamin K

Requirements—The exact minimal requirements for vitamin K have not yet been determined The requirement for vitamin K is usually satisfied by any acceptable diet, except perhaps for the infant in utero and during the first few days of life It has been suggested that newborn infants require little vitamin K and that possibly 1 microgram of synthetic vitamin K is a sufficient daily amount A dose of 1 to 2 mg of pure vitamin K, or a synthetic compound exhibiting vitamin K activity is known to be adequate for correcting deficiency of vitamin K It is known that the need for vitamin K is increased in cases of diarrhea and inadequate intestinal absorption As much as 40 mg of menadione may be required to correct the hypoprothrombinemia produced in man by the administration of dicumarol ®

Absorption and Storage—It is necessary that adequate amounts of bile salts be present for proper absorption of natural vitamin K Clinical experience has indicated that vitamin K is not absorbed through the colon or upper part of the ileum but is absorbed readily through the upper part of the jejunum In recent reports emphasis has been placed on the fact that if excessive amounts of liquid petrolatum are administered with meals proper absorption of this vitamin may be prevented

Apparently vitamin K is not stored easily in the body Clinical investigation indicates that the little that is stored in the body is stored in the liver Vitamin K has not been found in the urine or in human bile, but it has been found in the feces It remains to be established whether the vitamin K found in feces is there because of the presence of micro-organisms known to contain vitamin K or because of actual excretion of the substance Some investigators have held the opinion that man obtains some of his supply of vitamin K from intestinal organisms, but this has not been definitely proved Prothrombin deficiency can be produced in animals by administration of sulfaguanidine, succinylsulfathiazole, sulfapyrazine or sulfadiazine, prothrombin deficiency is prevented when vitamin K is administered This action has been explained on the basis of the effect of these drugs on Escherichia coli in the intestinal tract

Physiologic Action—Little is known concerning the precise action of vitamin K in the animal organism It is known to pass readily from mother to fetus and to be associated intimately with normal physiologic function of the liver Avitaminosis K in man, from any cause, results in a decrease in the concentration of prothrombin of the blood, the prothrombin content of the blood increases rapidly after the administration of vitamin K Prothrombin administered orally does not show vitamin K activity This indicates that the vitamin does not form a part of the prothrombin molecule The manner in which vitamin K participates in the formation of prothrombin is not known It has been suggested that vitamin K is a reversible oxidation-reduction catalyst More recently, a hypothesis has been reported which suggests that the antihemorrhagic effect of vitamin K and its synthetic analogues is due to their biochemical degeneration to phthalic acid The authors of this hypothesis regarded phthalic acid as the true carrier of biologic activity[26]

(A discussion of vitamin K deficiency appears in chapter 21 of the Handbook of Nutrition)

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[24] Dam Henrik The Antihemorrhagic Vitamin of the Chick Occurrence and Chemical Nature Nature **135** 652 (April 27) 1935 Butt, H R, Snell A M, and Osterberg A E The Use of Vitamin K and Bile in Treatment of the Hemorrhagic Diathesis in Cases of Jaundice, Proc Staff Meet, Mayo Clin **13** 74 (Feb 2) 1938 Warner E D Brinkhous, K M and Smith H P Bleeding Tendency of Obstructive Jaundice Prothrombin Deficiency and Dietary Factors Proc Soc Exper Biol & Med **37** 628 (Jan) 1938

[25] Fieser, L F The Chemistry of Vitamin K *Ann Int. Med* **15** 648 (Oct) 1941

[26] Shemiakin M M, Schukina, L A and Schvezov, J B Studies in the Vitamin K Group II The Mechanism of Biological Action of Vitamin K and of its Synthetic Analogs J Am Chem Soc. **65** 2164 (Nov) 1943

TOXICITY

Serious untoward reactions have not been observed in cases in which patients have been given reasonable therapeutic doses of either natural concentrates of vitamin K, synthetic vitamin K_1 or any of the synthetic compounds now available commercially which exhibit antihemorrhagic activity Apparently blood pressure, respiration, permeability of capillaries or urinary excretion have not been affected after administration of any of these compounds However, oral administration of doses of menadione as large as 180 mg to human beings have caused vomiting and porphyrinuria These huge doses, however, are so obviously greater than those employed for therapeutic use that at present it appears safe to continue therapeutic administration of these synthetic compounds As a rule, hyperprothrombinemia is not produced in man when large doses of vitamin K are administered

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Council on Pharmacy and Chemistry

REPORTS OF THE COUNCIL

The Council on Pharmacy and Chemistry has authorized publication of the following statement

R. T Stormont, M D, *Secretary*

WARNING ON OXYLIN TABLETS

The Federal Food and Drug Administration warns hospitals, physicians, pharmacists and consumers that a drug is on the market which may cause poisoning It is Oxylin Tablets uncoated, distributed by Drexel Laboratories and Louis E Evons of Drexel Hill and Upper Darby, Pa. The tablets contain boric acid Sensitive persons may receive sufficient boric acid from the uncoated Oxylin Tablets to result in serious poisoning

Available records show that the tablets have been distributed in Maryland, New Jersey New York and Pennsylvania The distributor operates along the Atlantic seaboard and as far west as Chicago Persons who have been using these tablets should discontinue their use immediately Dealers and others who have them should notify the Food and Drug Administration and return the tablets to the manufacturer

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies A copy of the rules on which the Council bases its action will be sent on application

R T Stormont M D, *Secretary*

PROTEIN HYDROLYSATES (See New and Nonofficial Remedies 1949, p 413)

The following dosage forms have been accepted

The National Drug Company Philadelphia 44

Powder Aminonat (Unflavored) 454 Gm packages A pancreatic digest of lactalbumin containing amino acids and polypeptides equivalent to about 90 per cent hydrolyzed protein providing 130 calories per 28 35 Gm It has 61 per cent of its total nitrogen as amino nitrogen

Powder Aminonat (Flavored) 226 8 Gm and 454 Gm. packages A pancreatic digest of lactalbumin containing amino acids and polypeptides equivalent to about 87 5 per cent hydrolyzed protein providing 128 calories per 28 35 Gm It has 61 per cent of its total nitrogen as amino nitrogen It contains 2 5 per cent flavoring material

U S trademark 424 237

ALUMINUM HYDROXIDE GEL (See New and Nonofficial Remedies 1949, p 333)

The following dosage form has been accepted

Veltex Company, Birmingham, Ala

Gel Aluminum Hydroxide 480 cc and 3 84 liter bottles Contains the equivalent of 3 95 to 4 3 per cent of aluminum oxide with saccharin and oil of peppermint as flavoring agents and sodium benzoate

DIPHTHERIA TOXOID, ALUMINUM HYDROXIDE ADSORBED—Aluminum Hydroxide Adsorbed Diphtheria Toxoid is a sterile suspension of diphtheria toxoid adsorbed on aluminum hydroxide from the solution in which the products of growth of the diphtheria bacillus (Corynebacterium diphtheriae) have developed and have been so modified by special treatment as to have lost the ability to cause toxic effects in guinea pigs but retain the property of inducing active immunity The antigenic value is such that not more than one-half the volume, which is to be recommended for the lot under test as the total human immunizing dose, produces at least 2 units of antitoxin per cc of serum in not more than four weeks in an aliquot serum pool from not less than four guinea pigs Aluminum Hydroxide Adsorbed Diphtheria Toxoid complies with the official potency and other requirements of the National Institutes of Health of the United States Public Health Service.

Actions and Uses—(See monograph on Diphtheria Toxoid.) Because of the physical character of the aluminum hydroxide adsorbed product, absorption is delayed

Dosage—Hypodermic, for active immunization 0 5 cc. to be repeated twice with an interval of three to four weeks

Cutter Laboratories, Berkeley 1, Calif

Diphtheria Toxoid, Alhydrox 1 cc. vials (one immunization) and 5 cc. vials (five immunizations) Preserved with thimerosal 1 10 000

DIPHTHERIA AND TETANUS TOXOIDS, ALUMINUM HYDROXIDE ADSORBED—Diphtheria and Tetanus Toxoids, Aluminum Hydroxide Adsorbed is a turbid, white or slightly gray suspension prepared by mixing suitable quantities of aluminum hydroxide adsorbed diphtheria toxoid and aluminum hydroxide adsorbed tetanus toxoid each of which possesses adequate potency to permit combining The toxoids shall be mixed in such proportions as to provide an immunizing dose of each toxoid in the total dosage prescribed on the label Aluminum Hydroxide Adsorbed Diphtheria and Tetanus Toxoids complies with the requirements of the National Institutes of Health of the United States Public Health Service.

Actions and Uses—See monograph on Diphtheria and Tetanus Toxoids Because of the physical character of the aluminum hydroxide adsorbed product, absorption is delayed

Dosage—Hypodermic, for active immunization, 0 5 cc to be repeated once with an interval of four to six weeks

Cutter Laboratories, Berkeley 1, Calif

Diphtheria and Tetanus Toxoids Alhydrox 1 cc. vials (one immunization) and 5 cc vials (five immunizations) Preserved with thimerosal 1 10,000

TETANUS TOXOID, ALUMINUM HYDROXIDE ADSORBED—Aluminum Hydroxide Adsorbed Tetanus Toxoid is a sterile suspension of tetanus toxoid, adsorbed on aluminum hydroxide from a solution in which the products of growth of the tetanus bacillus (Clostridium tetani) have developed and have been so modified by special treatment as to have lost the ability to cause toxic effects in guinea pigs, but retain the property of inducing active immunity The antigenic value is such that not more than one-half of the volume which is to be recommended for the lot under test as the total human immunizing dose produces at least 2 units of antitoxin per cc of serum in not more than six weeks in an aliquot serum-pool from not less than four guinea pigs

Aluminum Hydroxide Adsorbed Tetanus Toxoid complies with the official potency test and other requirements of the National Institutes of Health of the United States Public Health Service

Actions and Uses—(See monograph on Tetanus Toxoid.) Because of the physical character of the aluminum hydroxide adsorbed product absorption is delayed.

Dosage—Hypodermic, for active immunization 0 5 cc to be repeated twice with intervals of three to four weeks

Cutter Laboratories Berkeley 1, Calif

Tetanus Toxoid, Alhydrox 1 cc. vials (one immunization) and 5 cc. vials (five immunizations) Preserved with thimerosal 1 10 000

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION
535 NORTH DEARBORN STREET - - - CHICAGO 10, ILL

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SATURDAY, MAY 20, 1950

SAN FRANCISCO MEETING

The San Francisco meeting of the American Medical Association offers promise of being one of the most satisfying and important annual sessions of this great medical organization Thousands of members and Fellows already have registered, others are applying daily Those who register in advance will not have to spend time filling in cards at the place of meeting, they merely will walk to an appropriate window, present their advance registration card and receive badge, program and any other material that may be given out at that time Approximately 10,000 physicians are expected to attend the ninety-ninth annual meeting of the American Medical Association, which will be held from June 26 to June 30 General scientific meetings will be held on the first two days of the convention, sectional meetings on the next three days

Elsewhere in this issue of The Journal are the program and other information, such as descriptions of scientific and technical exhibits Included in the special features in the scientific exhibit will be exhibits on tropical medicine presented with the cooperation of the American Society for Tropical Medicine and the American Foundation for Tropical Medicine, a blood bank operated by the California Medical Association Blood Bank Commission, fractures, speech rehabilitation presented by the Section on Physical Medicine and Rehabilitation with the cooperation of the National Society for Crippled Children and Adults and the American Speech and Hearing Association, and diabetes and various specialties of medicine, with emphasis being placed on the interest of physicians in general practice

Motion pictures and colored television will be shown in Masonic Hall in the Civic Center, which is near the Auditorium These two methods of audiovisual instruction will be conducted simultaneously, permitting the observer to compare one with the other The motion pictures have been carefully selected with the cooperation of the A M A Committee on Medical Motion Pictures, and an outstanding program has been developed Of particular interest will be a premier showing of a motion picture entitled Breast Self Examination, which was prepared jointly by the American Cancer Society and the National Cancer Institute Although this film was designed primarily for showing to groups of women, it is recommended that physicians see it so that they will be familiar with its message

In the General Scientific Meetings will be featured a symposium on Atomic Energy in War and Peace Other topics will be concerned with certain aspects of cancer, antibiotics, drugs for allergy, psychiatry, pituitary adrenocorticotropic hormone (ACTH), cortisone, proteins for patients undergoing operation and the use of estrogens This does not, however, complete the list Other important subjects will be offered

The House of Delegates will meet at the Palace Hotel, the headquarters for the convention Many topics of importance will be discussed One of much interest will be the establishment of an organization for medical students

Local and network radio and television programs emanating or resulting from the meeting will be covered by the A M A Bureau of Health Education Messenger service, script writing when necessary and other services will be provided by specially trained personnel Of particular interest will be the address when the president is inaugurated It will be broadcast over a nationwide network Tuesday evening (June 27)

The activities of the Woman's Auxiliary and the entertainment for ladies will provide highlights for the wives and guests of physicians Golf, tours, renowned dining places and other attractions will provide additional appeal for physicians and their families Many are planning trips from San Francisco to Hawaii, along the coast and elsewhere Vacations and attendance at the meeting are being combined Fraternities are planning luncheons and dinners The annual award for distinguished service to the medical profession and the presidential ball are other outstanding features

This convention should have appeal for all who do attend Without doubt, it will be the source of innumerable pleasant memories for attending physicians and their families There are still rooms available, but they should be requested promptly For pleasure San Francisco has much to offer For graduate medicine the A M A annual convention is of incalculable aid to the searching physician who is eager to learn

THE AMERICAN MEDICAL DIRECTORY

The eighteenth edition of the AMERICAN MEDICAL DIRECTORY has been completed, and copies are now being shipped to subscribers The long interval of eight years between this edition and the previous one made necessary the setting of new type for the entire book The loss of experienced clerical help during the war, labor conditions and printing difficulties contributed to the delay in publication Previous editions were compiled and printed in the headquarters building of the American Medical Association in Chicago, this edition was compiled at headquarters but was set in type and printed in another city

INCREASED INFORMATION IN THE NEW DIRECTORY

The 1950 Directory contains 2,913 pages and lists information on 219,677 physicians in the United States, its dependencies and Canada and American graduates and licentiates located temporarily abroad Since the seventeenth edition of the Directory was issued, in 1942, hundreds of thousands of changes of address have occurred, the new addresses are listed in the latest edition, 51,984 names have been added and 28,242 other names have been deleted from the book because of death or other reasons Additional thousands of changes were made in society affiliations, teaching appointments at medical schools, specialties and hospital data In the 1942 issue of the Directory the total number of physicians listed in the United States was 180,496, in the 1950 edition the number is 201,277, a gain of 20,781 The average yearly gain for the past eight years was 2,598

SHIFTS IN PHYSICIAN POPULATION

The Pacific states show the largest increase in physicians, the Atlantic and Great Lakes states a moderate increase, and the West Central states the greatest losses California leads in the gain, with 16,668 physicians in 1950 as compared with 12,365 in 1942 New York state shows a gain of 2,284, Texas 772, Pennsylvania 704, Florida 634 and Massachusetts 603 Among the twenty-four largest cities in the United States, New York is first with a gain of 1,426 and Kansas City, Mo, twenty-fourth with a gain of 18

STATISTICAL INFORMATION TABULATED IN THE DIRECTORY

The eighteenth edition of the Directory presents five tables of statistical information The previous editions contained only two tables—the first compared the number of physicians and hospitals in the current edition with the numbers in the preceding edition, and the second showed the number of physicians listed by state in each edition of the Directory beginning with volume 1 in 1906

In the 1950 issue of the Directory tables 1 and 2 show the current figures The three new tables contain additional information Table 3 lists the number of members and Fellows of the American Medical Association by state and provides a breakdown of the number of physicians according to type of practice Table 4 lists by state the number of physicians specializing or especially interested in the various branches of medicine Table 5 gives the number of hospitals listed by state in each edition of the Directory since 1906

Table 3 reveals that 8,072 of the 201,277 physicians in the United States are permanent medical officers and 4,464 are reserve officers on active duty in the Army, Air Force, Navy, United States Public Health Service, Veterans Administration and Indian Service, a total of 12,536 physicians in government service The remaining 188,741 physicians in the United States are in the following classifications 72,550 physicians are in general practice, with 22,976 more in general practice giving special attention to a specialty, 54,891 limit their practice to a specialty, 9,700 are retired or not in practice, 3,737 are not in private practice, and 24,887 are serving as interns, resident physicians or full time physicians in hospitals

Table 4, showing the distribution by states of those interested in a specialty, indicates that physicians who either limit their practice or give special attention to some branch of medicine total 90,464, this figure (which includes some physicians not in private practice and some in hospital service) compares with 67,388 in 1943 The number giving special attention to a specialty decreased slightly, the present directory lists 25,009, as compared with 26,819 in this group in 1943

OTHER NEW FEATURES IN THE DIRECTORY

For the first time, postal zone numbers appear after the residence and office addresses in cities in which they are required by the Post Office When one uses such addresses, the zone number should be inserted between the name of the city and that of the state in each case

A new feature of this edition is the inclusion of data on the World Medical Association, covering historical material, officers and representatives, and the medical manpower of various nations

A list of physicians deceased is published in this edition to record those physicians whose names were entered in the files of the Directory Department after publication of the seventeenth edition in 1942 and who have since died The list has been inserted in the book preceding the alphabetical index of names

EDITORIAL CHANGES

To gain space in the Directory, so that the book could contain information on more physicians without an increase in its size, it was necessary to make some editorial changes The list of hospitals approved for internships and residencies, which formerly appeared in the front section of the Directory, was omitted, this information is contained each year in a special issue of THE JOURNAL The list of permanent, full time medical officers in the Army, Navy, Air Force, United States Public Health Service, Veterans Administration and Indian Service now appears only in the front section of the Directory with full biographic data In previous editions such physicians were listed with biographic data under the city in which they were located and also in a separate list of officers for each service in the front section of the book

Other information was deleted to save space The office hours of physicians are no longer printed in the Directory Another change in the listing of biographic data is the abbreviation of the middle name of the physician to an initial, the full name, for identification, is given in the alphabetical index The names of presidents of boards of health, boards of medical examiners and state and county medical societies were omitted, but the Directory continues to list the names and addresses of the secretaries of these organizations The section on the Philippines was omitted, inasmuch as the former dependency of the United States is now a republic

ARRANGEMENT OF THE DIRECTORY

The Directory information is grouped into three sections General information is contained in the front section preceding the state lists of physicians and hospitals, it includes data on the American Medical Association and the World Medical Association, statistical information on the medical profession, medical schools, examining boards in medical specialties, medical libraries and journals and members of special societies, and biographic information on permanent medical officers serving in regular units of the federal government

The second section is arranged by state and province, with information on the medical practice act, secretaries of state boards of health, state boards of medical examiners and state and county medical societies preceding the lists of the registered hospitals and the legally qualified physicians in the state The information on hospitals includes the year established, the number of beds, type of service, whether approved for internship and residency training, and the name of the medical director or superintendent The biographic data on physicians show, whenever available, the year of birth, medical school and year of graduation, year licensed in the state in which located, medical society affiliations, specialty practiced, certification by a specialty board, professorships and residence and office addresses

The third section of the Directory, the alphabetical index of physicians, lists the full name of the physician followed by the name of the city under which his biographic data are given

The compiling of information for the eighteenth edition of the American Medical Directory was possible only with the cooperation of the medical profession and allied organizations Various government agencies, deans of medical schools, secretaries of medical licensing boards, officers of constituent state associations and component county societies, special medical societies and examining boards in specialties, alumni associations, state, county and local health authorities, and thousands of physicians and correspondents gave helpful assistance in the preparation of this edition Their help has been invaluable

Current Comment

VOLUME III OF QUESTIONS AND ANSWERS

Volume III of Questions and Answers, which is just off the press, is now available The publication of this volume has been delayed by circumstances incident to the recent war The previous volume was published in 1942 The new volume contains answers to nearly 1,000 difficult questions which arose in the daily practice of physicians throughout the United States These questions were carefully selected for their suitability to a handy reference book from the Queries and Minor Notes published in The Journal during the last seven years The answers were prepared by experts in the various fields of medicine Much of the information provided in volume III of Questions and Answers would be difficult to find elsewhere in such concise form This information will be helpful to general practitioners, specialists, public health workers and others in the medical and allied professions Further details concerning this popular book appears on advertising page 137 in this issue of The Journal It may be obtained through the Order Department of the American Medical Association

SIMPLIFIED EXPERIMENTAL HYPERTENSION

A simplified method of producing arterial hypertension in laboratory animals is suggested by Rau[1] of the Department of Physiology, University of Missouri Previous methods include instrumental or surgical constriction of the renal arteries and the application of cellophane or silk around both kidneys These methods offer technical difficulties when applied to smaller laboratory animals Using the retroperitoneal approach Rau exposed one kidney of a dog The surrounding fat and fascia were carefully removed Plastic (butyl methacrylate polymer) dissolved in acetone or toluene was then sprayed by means of a large atomizer over the kidney, where it hardens into a tough capsule The capsules are not disturbed by body fluids, body temperature or movements of the animal Two weeks later the procedure was repeated on the opposite kidney After the second operation the blood pressure rises at the same rate as that noted[2] with the older technics, and persists at 190 mm of mercury or above.

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[1] Rau G C Science **111** 229 (March 3) 1950

[2] Page, I H *Production of Persistent Arterial Hypertension by Cellophane Perinephritis*, J A M A **113** 2046 (Dec 2) 1939

THE SAN FRANCISCO SESSION

AMERICAN MEDICAL ASSOCIATION, NINETY-NINTH ANNUAL SESSION
SAN FRANCISCO, JUNE 26-30, 1950

OFFICIAL CALL

To the Officers, Fellows and Members of the American Medical Association

The ninety ninth annual session of the American Medical Association will be held in San Francisco, Calif, June 26 30, 1950

The House of Delegates will convene at 10 a m Monday, June 26 In the House the representation of the various constituent associations for 1950 is as follows

Alabama	2	Nevada	1
Arizona	1	New Hampshire	1
Arkansas	2	New Jersey	6
California	11	New Mexico	1
Colorado	2	New York	23
Connecticut	3	North Carolina	3
Delaware	1	North Dakota	1
District of Columbia	2	Ohio	8
Florida	2	Oklahoma	2
Georgia	3	Oregon	2
Idaho	1	Pennsylvania	11
Illinois	10	Rhode Island	1
Indiana	4	South Carolina	2
Iowa	3	South Dakota	1
Kansas	2	Tennessee	3
Kentucky	3	Texas	7
Louisiana	2	Utah	1
Maine	1	Vermont	1
Maryland	3	Virginia	3
Massachusetts	7	Washington	3
Michigan	5	West Virginia	2
Minnesota	4	Wisconsin	3
Mississippi	2	Wyoming	1
Missouri	4	Alaska	1
Montana	1	Hawaii	1
Nebraska	2	Isthmian Canal Zone	1
		Puerto Rico	1

The scientific sections of the American Medical Association the Medical Corps of the Army, the Medical Corps of the Navy, the Medical Corps of the Air Force, the Public Health Service and the Veterans Administration are entitled to one delegate each.

The Scientific Assembly of the Association will open with the General Scientific Meetings to be held Monday June 26, starting at 2 p m and continuing throughout the morning and afternoon of Tuesday, June 27 The Inauguration Meeting, at which the President will be installed, will be held on Tuesday, June 27 The sections will meet Wednesday, Thursday and Friday, June 28, 29, 30, as follows

CONVENING AT 9 A M. THE SECTIONS ON	CONVENING AT 2 P M. THE SECTIONS ON
Pediatrics	Internal Medicine.
Surgery, General and Abdominal	Obstetrics and Gynecology
Ophthalmology	Laryngology, Otology and Rhinology
Experimental Medicine and Therapeutics	General Practice.
Nervous and Mental Diseases	Orthopedic Surgery
Dermatology and Syphilology	Urology
Gastro Enterology and Proctology	Pathology and Physiology
Radiology	*Anesthesiology*
Diseases of the Chest.	Physical Medicine and Rehabilitation
Preventive and Industrial Medicine and Public Health	Miscellaneous Topics
	Sessions on Military Medicine and Surgery

The Registration Bureau, which will be located in the Auditorium, will be open from 8 30 a m until 5 30 p m, Monday, Tuesday, Wednesday and Thursday, June 26, 27, 28 and 29, and from 8 30 a m to 12 noon Friday, June 30

Ernest E Irons, President
F F Borzell, Speaker, House of Delegates
George F Lull, Secretary

MEMBERS OF THE HOUSE OF DELEGATES

A Preliminary Roster of the Legislative Body of the American Medical Association

The list of members of the House of Delegates for the session is incomplete. Following is a list of the holdover members of the House of Delegates and of the newly elected members who have been reported to the Secretary in time to be included

STATE DELEGATES

ALABAMA
Carl A Grote Huntsville
J Paul Jones Camden

ARIZONA
Jesse D Hamer Phoenix

ARKANSAS
Rufus B Robins Camden
William R. Brooksher Fort Smith

CALIFORNIA
H Gordon MacLean Oakland
E Vincent Askey Los Angeles
John W Cline San Francisco
Donald Cass Los Angeles
Ralph B Eusden Long Beach
Robertson Ward San Francisco
Samuel J McClendon San Diego
Eugene F Hoffman Los Angeles
John Winston Green Vallejo
Lewis A. Alesen Los Angeles
R. Stanley Kneeshaw San Jose

COLORADO
William H Halley Denver
George A. Unfug Pueblo

CONNECTICUT
Joseph H Howard Bridgeport
Creighton Barker New Haven
Thomas P Murdock Meriden

DELAWARE
James Beebe Lewes

DISTRICT OF COLUMBIA
Herbert P Ramsey, Washington
Hugh H Hussey Jr Washington

FLORIDA
Homer L Pearson Jr Miami
Louis M. Orr II Orlando

GEORGIA
Allen H Bunce, Atlanta
Charles H Richardson Sr Macon
Benjamin H Minchew Waycross

IDAHO
H B Woolley Idaho Falls

ILLINOIS
G Henry Mundt Chicago
Warren W Furey Chicago
Robert H Hayes Chicago
Fred H Muller Chicago
Charles H Phifer Chicago
Mather Pfeiffenberger Alton
Harlan A English Danville
Bernard Klein Joliet
Willis I Lewis Herrin
Everett P Coleman Canton

INDIANA
Homer G Hamer Indianapolis
Alfred S Giordano South Bend
Franklin S Crockett Lafayette
William M Cockrum Evansville

IOWA
George Braunlich Davenport
Donald C Conzett Dubuque
Gerald V Caughlan Council Bluffs

KANSAS
John M Porter Concordia
Laurence S Nelson Sr Salina

KENTUCKY
Joshua B Lukins Louisville
Clark Bailey Harlan
Bruce Underwood Louisville

LOUISIANA
Val H Fuchs New Orleans
James Q Graves Monroe

MAINE
Thomas A Foster Portland

MARYLAND
Warde B Allan Baltimore
Jacob W Bird Sandy Spring
John W Parsons Baltimore

MASSACHUSETTS
Patrick J Sullivan Dalton
John J Curley Leominster
Walter G Phippen Salem
Frank W Snow Newburyport
Earle M Chapman Boston
John M Fallon Worcester
Leland S McKittrick Brookline

MICHIGAN
Leo G Christian Lansing
William A. Hyland Grand Rapids
Wyman D Barrett, Detroit
Robert L Novy Detroit
Willis H Huron Iron Mountain

MINNESOTA
William A Coventry Duluth
J Arnold Bargen Rochester
A. E Cardle Minneapolis
George A. Earl St. Paul

MISSISSIPPI
James P Wall Jackson
Felix J Underwood Jackson

MISSOURI
Howard B Goodrich Hannibal
Warren L. Allee Eldon
Robert E Schlueter St Louis
James R. McVay Kansas City

MONTANA
Raymond F Peterson Butte

NEBRASKA
Joseph D McCarthy Omaha
Karl S J Hohlen Lincoln

NEVADA
Roland W Stahr Reno

NEW HAMPSHIRE

Deering G Smith Nashua

NEW JERSEY

J Wallace Hurff, Newark
David B Allman, Atlantic City
Elmer P Weigel, Plainfield
Joseph F Londrigan, Hoboken
William F Costello Dover
James F Norton Jersey City

NEW MEXICO

John F Conway Clovis

NEW YORK

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Albert F R Andresen Brooklyn
James R Reuling, Bayside
Floyd S Winslow Rochester
Herbert H Bauckus, Buffalo
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William B Rawls, New York
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Leo F Schiff, Plattsburg
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George W Kosmak, New York
J Stanley Kenney New York
Peter J DiNatale Batavia
Andrew A Eggston, Mount Vernon
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Peter M Murray, New York
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B O Edwards Asheville
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NORTH DAKOTA

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Francis F Borzell, Philadelphia
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RHODE ISLAND

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Hugh P Smith, Greenville
Julian P Price, Florence

SOUTH DAKOTA

H Russell Brown Watertown

TENNESSEE

Robert B Wood Knoxville
William C Chaney, Memphis
Charles W Hamilton Nashville

TEXAS

John K Glen, Houston
Allen T Stewart, Lubbock
Robert B Homan Jr El Paso
Joseph B Copeland San Antonio
Truman C. Terrell Fort Worth
Britton E Pickett Sr Carrizo Springs
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VERMONT

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A G Young, Wenatchee

WEST VIRGINIA

Walter E Vest, Huntington
George F Evans, Clarksburg

WISCONSIN

Stephen E Gavin, Fond du Lac
James C Sargent, Milwaukee
William D Stovall Madison

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HAWAII

Alfred S Hartwell Honolulu

PUERTO RICO

F Sanchez Castano, Vega Baja

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Grover C Penberthy Detroit

OBSTETRICS AND GYNECOLOGY

Harvey B Matthews Brooklyn

OPHTHALMOLOGY

William L. Benedict Rochester, Minn

LARYNGOLOGY, OTOLOGY AND RHINOLOGY

Gordon F Harkness Davenport, Iowa

PEDIATRICS

William Weston, Columbia S C

EXPERIMENTAL MEDICINE AND THERAPEUTICS

Edgar V Allen, Rochester, Minn

PATHOLOGY AND PHYSIOLOGY

Leonard W Larson Bismarck, N D

NERVOUS AND MENTAL DISEASES

Percival Bailey, Chicago

DERMATOLOGY AND SYPHILOLOGY

Everett C Fox Dallas Texas

PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH

Stanley H Osborn, Hartford Conn

UROLOGY

J J Crane, Los Angeles

ORTHOPEDIC SURGERY

Edward L Compere Chicago

GASTRO ENTEROLOGY AND PROCTOLOGY

Louis A Buie, Rochester Minn

RADIOLOGY

Byrl R Kirklin, Rochester, Minn

ANESTHESIOLOGY

Henry S Ruth Haverford Pa.

GENERAL PRACTICE

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DISEASES OF THE CHEST

Hollis E Johnson, Nashville, Tenn

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George E Armstrong

UNITED STATES NAVY

Joel T Boone

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PUBLIC HEALTH SERVICE

W Palmer Dearing

VETERANS ADMINISTRATION

Edward H Cushing

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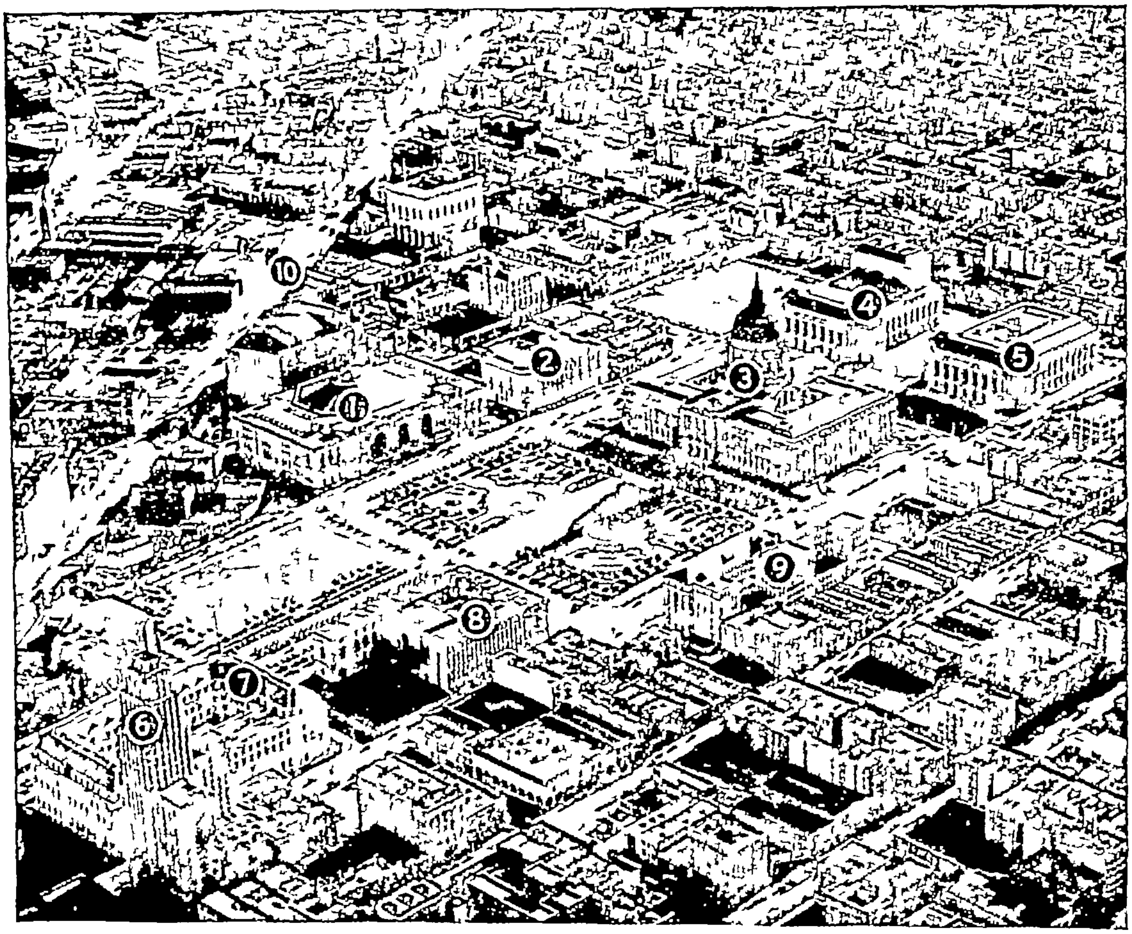
SAN FRANCISCO — 1950

Long regarded as one of the more beautiful and romantic cities of the United States, San Francisco appeals to tourists and conventioners It is situated on seven steep hills and overlooks San Francisco Bay With adequate facilities for meetings, with restaurants and shopping facilities to excite the imagination, with adjacent areas of breath taking beauty and with outstanding universities, this California city attracts young and old. The Golden Gate Bridge, cable cars, Chinatown, civic buildings, Fisherman's Wharf, Knob Hill, Telegraph Hill—these and other names are familiar to people throughout the country and provide an adequate source for discussion for all visitors long after their visits are ended By train, by airplane, by bus and by car, visitors, businessmen and others add to the affairs of a city that is appropriately identified with the words "Golden Gate"

It is a city that may be explained by guides, but the average visitor will find plenty of interest without a guide. No matter where he goes or turns, he can see something new and exciting Those who are excited by stories of the sea, the Orient or gold strikes will find in San Francisco much to revive the memory of their favorite stories or to suggest possibilities for new ones Many fiction stories have been based on San Francisco The hills, the water front, the fog—all have served as exciting elements in these stories Alcatraz which can be seen from so much of the city, is an equally familiar name. Those who like "after dark" life will not be disappointed in the many spots for the night lifers Californian wines, Latin American dishes, seafood, Italian food, German and French dishes and many other culinary delights appease even the daintiest appetite

San Francisco is a young city, having been so named in 1847, although prior to then the community was known as Yerba Buena Nevertheless, the history of the earlier explorers, the gold rush, vigilance committees and the pony express and international intrigue have been such familiar subjects that many without thinking regard this city as much older Industries, educational facilities, streets and boulevards contribute to San Francisco life Within a remarkably short time this city assumed the leadership it now enjoys It now is generally referred to as one of the most cosmopolitan cities in America

As a medical center, San Francisco has international recognition The scene of medical schools, the home of the headquarters of the California Medical Association and the site of fine hospitals and of an exceptional health department, it offers a strong appeal to medical researchers educators and practitioners The San Francisco County Medical Society is one of the pioneer medical organizations in California The headquarters of this society is housed in a mansion which is a fine example of beauty Its appeal to visitors is well known



AIR VIEW OF SAN FRANCISCO S CIVIC CENTER AND ENVIRONS

1 Auditorium
2 Board of Health Building
3 City Hall
4 Opera House
5 Veterans Building
6 Empire Hotel
7 Federal Building
8 Library
9 State Building
10 South Market Street

REGISTRATION

The Bureau of Registration will be located at the Grove St entrance, Civic Auditorium An information bureau will be operated in connection with the Bureau of Registration

Who May Register

Only Fellows, Affiliate, Associate and Honorary Fellows and Invited Guests may take part in the work of the sections *Members may register for attendance at meetings* Fellows of the Scientific Assembly are *those members who have,* on the prescribed form, applied for Fellowship, subscribed to THE JOURNAL and paid their Fellowship dues for the current year Fellowship dues and subscription to THE JOURNAL are included in the one annual payment of $12, which is the regular subscription price of *THE JOURNAL* *Fellowship cards are sent* to all Fellows after payment of annual dues, and these cards should be presented at the registration window Any who have *not received cards for 1950* should secure them at once by writing to the American Medical Association, 535 North Dearborn Street, Chicago 10

Members in Good Standing Eligible to Apply for Fellowship in the Association

Members in good standing in the American Medical Association are those members of component county medical societies and of constituent state and territorial medical associations *whose names are officially reported for enrolment* to the Secretary of the American Medical Association by the secretaries of the constituent medical associations and who have paid their membership dues to the American Medical Association, which this year are $25, to be paid through constituent state medical associations All members in good standing may apply for Fellowship in the Scientific Assembly and, if they desire to do so, are urged to qualify as Fellows *before leaving home*

Application forms may be had on request

Members who *do not qualify* as Fellows will be permitted to register for attending meetings and for visiting exhibits

Register Early

Members and Fellows living in San Francisco, as well as all other physicians who are in San Francisco on Monday and Tuesday, should register as early as possible

The names and local addresses of those who register will be included *in the* issue of the *Daily Bulletin* appearing the next day, and this will enable visiting physicians to find friends who have registered

Suggestions That Will Facilitate Registration of Fellows

Fellows should fill out completely the spaces on both sections of the front of the registration card Physicians who desire to qualify as Fellows should fill out completely the spaces on both sections of the front of the registration card and sign the application on the back These cards will be found on the tables

Entries on the registration card should be written plainly, or printed, as the cards are given to the printer to use as "copy" for the *Daily Bulletin,* which appears on Tuesday, Wednesday, Thursday and Friday mornings during the week of the session

Fellows who have their pocket cards with them can be registered with little or no delay They should present the filled out registration card, together with the pocket card, at one of the windows marked "Registration by Pocket Card" There the clerk will compare the two cards, stamp the pocket card and return it and supply the Fellow with a badge and a copy of the official program

As previously stated, it will assist in the registration if those who desire to qualify as Fellows will file their applications and qualify as Fellows by writing directly to the American Medical Association, 535 North Dearborn Street, Chicago 10, so that their Fellowship may be entered not later than June 1 Any applications that are received later than June 1 will be given prompt attention, but the *Fellowship pocket card may not reach* the applicant in time for him to register at the San Francisco session

It will be possible for members of the organization to qualify as Fellows at San Francisco In order to do this, applicants for Fellowship will be required to fill out both sections of the front of the registration card and to sign the formal application that is printed on the reverse side of the card It is suggested that those members who apply for Fellowship at San Francisco bring with them their state membership cards for the year 1950 The state membership card should be presented along with the filled in registration card at the window in the booth marked "Applicants for Fellowship and Invited Guests"

Registration for General Officers and Delegates at the Palace Hotel

General officers of the American Medical Association and members of the House of Delegates may register for the Scientific Assembly outside the Concert Room of the Palace Hotel This arrangement is made for the convenience of members of the House of Delegates, which will convene on Monday morning at 10 o'clock in the Concert Room of the Palace Hotel Delegates are requested to register for the Scientific Assembly before presenting credentials to the Reference Committee on Credentials of the House of Delegates Registration of delegates for the Scientific Assembly will begin at 8 o'clock Monday morning, June 26, and delegates are urged to register early so that all members of the House of Delegates may be seated in time for the opening session of the House If any delegate is in San Francisco on Sunday, June 25, he may register for the Scientific Assembly at the Concert Room of the Palace Hotel

Registration for Lay Executive Secretaries

Lay executive secretaries of component and constituent associations may register any time Saturday or Sunday, June 24 or 25, or any time after 12 noon Monday, June 26 during the week of the session at the House of Delegates registration desk in the Palace Hotel

TRANSPORTATION

It is suggested that those Fellows who contemplate traveling to San Francisco to attend the annual session of the Association secure information concerning railroad and airplane travel directly from their local ticket agents, who are in a position to give them information regarding train or plane schedules and fares

Chicago Medical Society's Special Transportation to San Francisco Session

The Special Transportation Committee of the Chicago Medical Society offers the following arrangements for members and guests

Air Transportation United Air Lines, special flight leaving Chicago day before opening of session and returning closing day

Rail Transportation (three routes)

1 Great Northern, (northern route)
2 Northwestern, Southern Pacific and Union Pacific (direct route)
3 Santa Fe (southern route)

This plan of transportation is presented in order to offer a wide selection of routes The railways are prepared to arrange for individual stopovers and side trips, outbound or inbound The United Air Lines will serve those who wish to spend the minimum amount of time in travel

Reservations by air may be made by application to the office of the Chicago Medical Society, 30 North Michigan Avenue, Chicago 2 Railway reservations may be made directly with the companies

United Air Lines

Special Mainliner 300 (DC-6) Flight is sponsored by the Chicago Medical Society Three Mainliner 300 nonstop flights are operated daily from Chicago to San Francisco and return in addition to a one-stop, a three-stop and a four-stop flight Consult the United Air Lines 35 E Monroe St, Chicago, concerning its family plan, whereby on certain days wives and children, twelve to twenty-one years of age, travel at half fare The United Air Lines office will give detailed information to assist in the choice of routes to and from San Francisco and on flights to Honolulu, Hawaii, after the closing of the session

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MEETING PLACES

HOUSE OF DELEGATES Concert Room Palace Hotel, Market at New Montgomery Street

INAUGURAL MEETING Gold Ballroom, Palace Hotel Market at New Montgomery Street

GENERAL HEADQUARTERS REGISTRATION BUREAU, SCIENTIFIC EXHIBIT, TECHNICAL EXHIBITS AND INFORMATION BUREAU Civic Auditorium, Grove Street entrance.

SECTIONS OF SCIENTIFIC ASSEMBLY

ANESTHESIOLOGY Hall 2, Masonic Temple, Van Ness Avenue and Market Street

DERMATOLOGY AND SYPHILOLOGY Banquet Room, California Hall, 625 Polk Street.

DISEASES OF THE CHEST Hall 1, Masonic Temple, Van Ness Avenue and Market Street.

EXPERIMENTAL MEDICINE AND THERAPEUTICS Boys and Girls Gymnasium, High School of Commerce, Franklin and Hayes Streets

GASTRO-ENTEROLOGY AND PROCTOLOGY Auditorium, Masonic Temple Van Ness Avenue and Market Street

GENERAL PRACTICE Boys and Girls Gymnasium, High School of Commerce Franklin and Hayes Streets

INTERNAL MEDICINE Auditorium High School of Commerce, Franklin and Hayes Streets

LARYNGOLOGY OTOLOGY AND RHINOLOGY Auditorium, California Hall 625 Polk Street

MISCELLANEOUS TOPICS, SESSIONS ON MILITARY MEDICINE AND SURGERY White Room, Masonic Temple, Van Ness Avenue and Market Street.

NERVOUS AND MENTAL DISEASES Black Room, Masonic Temple, Van Ness Avenue and Market Street.

OBSTETRICS AND GYNECOLOGY Auditorium, Veterans War Memorial, Civic Center

OPHTHALMOLOGY Auditorium, California Hall, 625 Polk Street

ORTHOPEDIC SURGERY Black Room, Masonic Temple, Van Ness Avenue and Market Street

PATHOLOGY AND PHYSIOLOGY Auditorium, Masonic Temple, Van Ness Avenue and Market Street.

PEDIATRICS Auditorium, High School of Commerce, Franklin and Hayes Streets

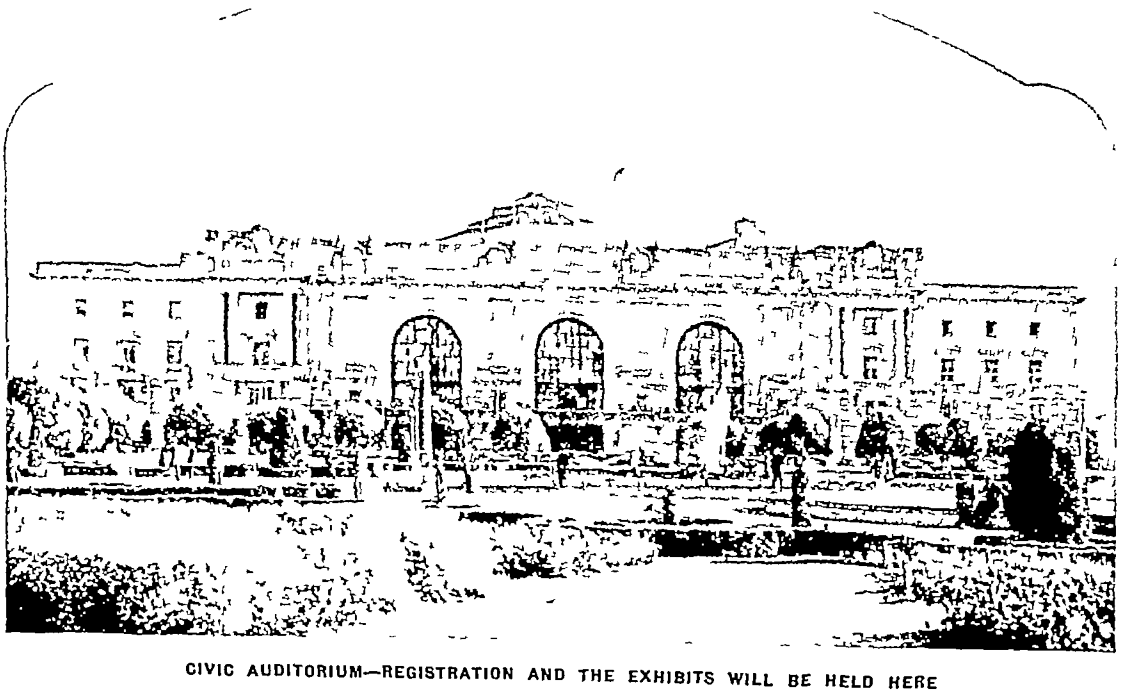
PHYSICAL MEDICINE AND REHABILITATION Hall 1, Masonic Temple, Van Ness Avenue and Market Street

PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH White Room, Masonic Temple, Van Ness Avenue and Market Street.

RADIOLOGY Hall 2, Masonic Temple Van Ness Avenue and Market Street

SURGERY GENERAL AND ABDOMINAL Auditorium, Veterans War Memorial Civic Center

UROLOGY Banquet Room, California Hall, 625 Polk Street



CIVIC AUDITORIUM—REGISTRATION AND THE EXHIBITS WILL BE HELD HERE

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Robertson Ward, Co-Chairman
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Ivan C Heron, Vice Chairman
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Frederick W Borden
Charles Brown
Donald Cass
Z B Coblentz
Frederick C Cordes
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G Daniel Delprat
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Donald W deCarle
Gertrude F Jones

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Robert N Shaffer, Chairman
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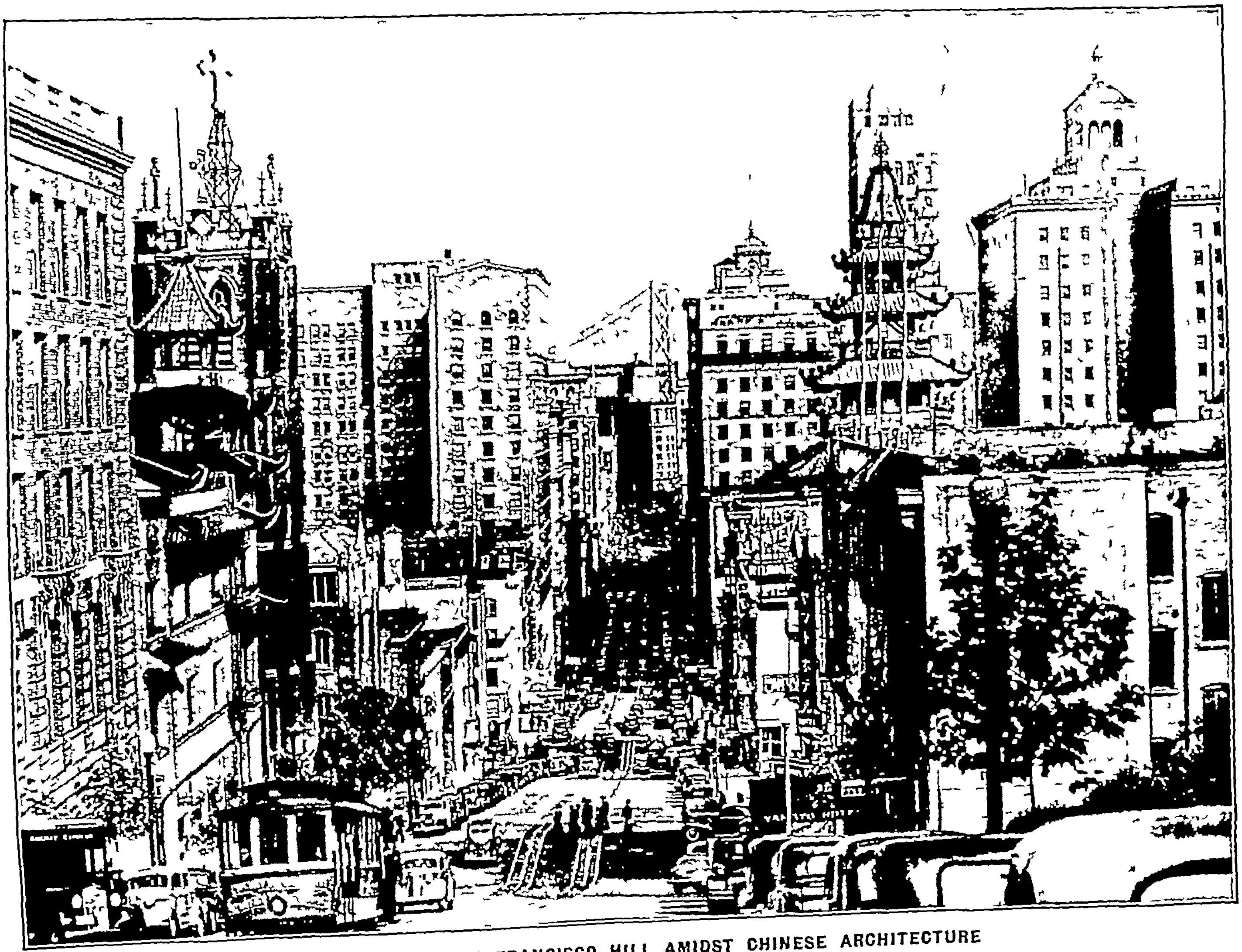
Max Fine



CABLE CAR ON SAN FRANCISCO HILL AMIDST CHINESE ARCHITECTURE

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Gerald G Gill

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Phillip R Westdahl

Subcommittee on Wines for House of Delegates Dinner

Salvatore P Lucia, Chairman

H Glenn Bell
Anthony B Diepenbrock
Marius A Francoz
Charles P Mathe
Ralph E Scovel
John Phillip Strickler
William W Washburn

Subcommittee on Golf

Edward Campion, Chairman

John E Bohm
James Eaves
Harry Hensler
Thomas G Lawler
James W Morgan
Walter F Schaller
Edward F Stadtherr
Robert P Thompson
Paul S Wyne

Subcommittee on Decorations

Thomas F Mullen, Chairman
V Loral Bergeron, Vice Chairman

Phillip H Arnet
Rene Bine Jr.
Frederick S Brackman
Francis L Chamberlain
Vincent H Greco
Frederick S Howard
Clayton D Mote
Alice Potter
Ellsworth F Quinlan
George B Robson
Lewis Specker
Gardner S Stout

ENTERTAINMENT

Inaugural Meeting

The Inaugural Meeting will be held in the Gold Ballroom of the Palace Hotel Tuesday, June 27 The audience will assemble at 5 30 p m, and the President's address will be broadcast at 6 00 p m Details will be published in the Official Program

Luncheons, Dinners and Meetings of Fraternity, Alumni and Other Organizations

Alpha Epsilon Iota, Luncheon, Wednesday, June 28 Other information to be announced later

Alpha Kappa Kappa, Luncheon, Whitcomb Hotel, Crystal Room, Wednesday, June 28, 12 30 p m

Alpha Omega Alpha, Dinner, Thursday, June 29, 6 30 p m, Comstock Room, Palace Hotel

Alumni Association of the Long Island College of Medicine, Cocktail Party, Wednesday, June 28, 5 p m Free to members and guests

Alumni Association of University of Chicago School of Medicine, Luncheon, Wednesday, June 28, 1 p m, St Moritz Restaurant, 530 Broadway Reservations may be made through Dr A T Haerem, 500 Arguello St, Redwood City, Calif

Alumni of the Medical School of the University of Pittsburgh, Luncheon, Wednesday, June 28, 12 noon Reservations may be secured from Dr Rutherford T Johnstone, 520 W Seventh St, Los Angeles 14

Association of Alumni of College of Physicians and Surgeons of Columbia University, Dinner, Wednesday, June 28, 7 p m Tickets obtainable from Dr P J Lipsett, 521 14th St, Oakland 12, Calif

College of Medical Evangelists, Dinner, Furniture Mart, Wednesday, June 28, 6 p m

Cornell Alumni Medical Association, Luncheon, Alexander Hamilton Hotel, Emerald Room, Tuesday, June 27

Creighton University Medical Alumni Association, Dinner-dance, Mark Hopkins Hotel, Room of the Dons, Wednesday, June 28, 7 p m Tickets obtainable from Dr J Clifford Long, 450 Sutter St, San Francisco

Federation of Catholic Physicians' Guilds, Luncheon, Fairmont Hotel, Tonga Room, Wednesday, June 28, 12 30 p m

George Washington University Alumni Association, Dinner, Fairmont Hotel, Red Room, Thursday, June 29, 7 p m Wives cordially invited Tickets available from Dr Angelo M May, 50 Sea Cliff Avenue, San Francisco

Harvard Medical Alumni Association, Dinner, Palace Hotel, Wednesday, June 28, 6 30 p m

Jefferson Medical College Alumni Association, Dinner, St Francis Hotel, Wednesday, June 28, 6 30 p m

Johns Hopkins Medical Alumni Association, Banquet, Palace Hotel, Comstock Room, Wednesday, June 28, 6 30 p m, in celebration of Welch Centenary

Loyola University Alumni Association, Dinner, Sir Francis Drake Hotel, Wednesday, June 28, 6 p m

McGill Graduate Society of Northern California, Dinner, University Club, Wednesday, June 28, 6 30 p m Tickets obtainable from Dr William Fitzhugh Jr, 384 Post St, San Francisco

Medical Alumni Society of the University of Pennsylvania, Dinner, Fairmont Hotel, Wednesday, June 28, 7 30 p m Cocktails, 6 30 p m Guests welcome.

Northwestern University Alumni Association, Cocktails, 6 30 p m, and Dinner, 8 p m, Fairmont Hotel, Garden Room, Wednesday, June 28

Nu Sigma Nu, Luncheon, Hotel Whitcomb, Corinthian Room, Wednesday, June 28, 12 noon Ladies escorted by members welcome

Phi Beta Pi, Luncheon, Mark Hopkins Hotel, Room of the Dons, Wednesday, June 28, 12 30 p m Tickets obtainable from Dr William H Rustad, 490 Post St, San Francisco 2

Phi Chi, Luncheon, Fairmont Hotel, Wednesday, June 28, 12 noon Tickets obtainable from Paul W Smith, 435 Judson Ave, San Francisco

Phi Delta Epsilon, Dinner Dance, Fairmont Hotel, Tuesday, June 27, 7 p m

Phi Lambda Kappa, Luncheon, Palace Hotel, French Room, Wednesday, June 28, 12 noon Tickets obtainable from Dr William Novick, Secretary, 621 So Fairfax, Los Angeles

Phi Rho Sigma, Luncheon, Hotel Fairmont, Garden Room, Wednesday, June 28, 12 noon Tickets obtainable from Dr George H Kress, 131 South Rampart Blvd, Los Angeles 4

Theta Kappa Psi, Luncheon, Fairmont Hotel, Hunt Room, Wednesday, June 28, 12 noon Tickets obtainable from Dr Joseph T Roberts, Veterans Hospital, Buffalo

Tufts Medical Alumni Association, Dinner, Rickey's Town House, Wednesday, June 28, 6 p m

University of Louisville Alumni, Dinner, St Francis Hotel, Wednesday, June 28, 6 30 p m Advance reservations necessary Tickets obtainable from Dr Reagan South, 1419 32d Ave, San Francisco

Women Physicians' Entertainment

June 25, 1950

San Francisco Bay Cruise, leaving Pier 43½, Fisherman's Wharf at 12 30 p m, returning at 2 p m $1 25 per person

June 25, 1950

Cocktail Party, at Marine Club Building, 609 Sutter Street, corner of Mason 4 to 6 p m. Guests of Women Physicians of San Francisco

June 26, 1950

Chinese Dinner, Hang Far Low Restaurant, 723 Grant Avenue Guests of Women Physicians of San Francisco

WOMAN'S AUXILIARY

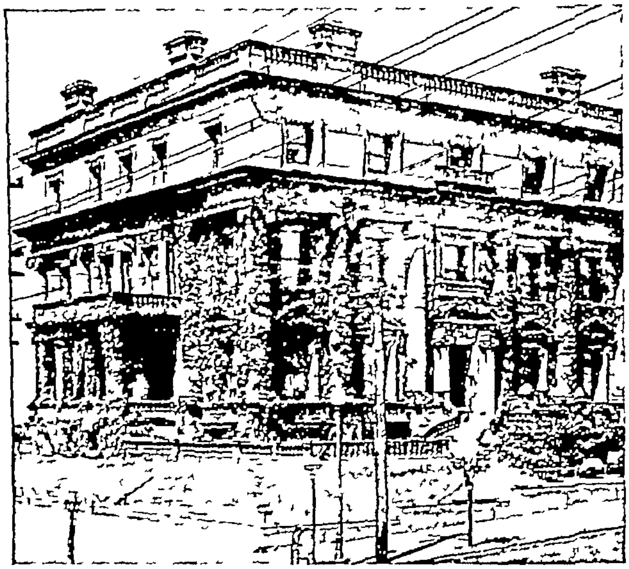
Information

It is San Francisco's great pleasure to extend a most cordial invitation to the members of the Woman's Auxiliary to the American Medical Association, and to the wives and guests of physicians attending the annual session of the American Medical Association, to be present at the general sessions of the Woman s Auxiliary and to participate in all its social events

The Auxiliary headquarters will be at the Fairmont Hotel where all the meetings and most of the social affairs will be held

Please register promptly and obtain your badge, program and tickets

Members of the Hospitality Committee will be at the hotel to assist in any way they can It is our sincere hope that your visit will be most profitable and very pleasant



HOME OF THE SAN FRANCISCO COUNTY MEDICAL SOCIETY

Registration Hours

Sunday, 12 m to 4 p m.
Monday, 9 a m to 4 p m
Tuesday, 9 a. m. to 4 p m
Wednesday, 9 a m to 4 p m
Thursday, 9 a m to 12 m

Acknowledgments

The Woman's Auxiliary to the American Medical Association is pleased to acknowledge the courtesy and generosity of Wyeth Incorporated, who provided this program for the annual meeting For the many courtesies extended to the chairmen of the various committees in preparation for the convention, detailed acknowledgment will be published later

The Convention Chairman wishes to express her sincere thanks to the California Medical Association the San Francisco County Medical Association, the Woman's Auxiliary to the California Medical Association, and to the National Auxiliary President, the Executive Secretary, and to the chairmen, co-chairmen and convention committee members for their assistance in preparing for the twenty-seventh annual meeting

Mrs Clifford Long,
General Chairman,
Committee on Convention Arrangements

Preconvention Schedule

Sunday, June 25

12 noon to 4 p m Registration Lobby, Fairmont Hotel

The members of the Hospitality Committee will welcome members and guests of the Woman's Auxiliary

COMMITTEE MEETINGS

1 p m Nominating Committee in Room 136 Mezzanine Floor)
Mrs Luther H Kice, Chairman

4 p m Revisions Committee in The Auxiliary President's Suite
Mrs Eustace A Allen, Chairman

8 p m Finance Committee in The Auxiliary President's Suite.
Mrs Scott C Applewhite, Chairman.

Monday, June 26

9 30 a m Board of Directors in The Auxiliary President's Suite
Mrs David B Allman, President, presiding

12 30 p m Luncheon for Board of Directors in Garden Room.
Mrs David B Allman, President, presiding

ROUND TABLE DISCUSSIONS

GREEN ROOM, HOTEL FAIRMONT

9-10 a m Hygeia Mrs Herbert Johnson, Chairman
10 11 a m Legislation Mrs Bruce Schaefer, Chairman
11-12 30p m Public Relations Mrs Paul Craig, Chairman.
2-3 p m Program Mrs Leo J Schaefer, Chairman

4 p m to 6 p m A Tea honoring Mrs David B Allman President, and Mrs Arthur A Herold, President-Elect, will be given for the members of the National Board of Directors, the state presidents and presidents elect and guests in Regency Room, Huntington Hotel Tickets $2.25

All doctors' wives are cordially invited.

Hostesses The Woman's Auxiliary to the California Medical Association.

SIGHTSEEING TRIPS

12 30 p m Trip around San Francisco (Buses will depart from and return to Fairmont Hotel) $2 59 (tax included)

8 p m. Chinatown and Fisherman's Wharf $1 90 (tax included)

Convention Program

9 a m Tuesday, June 27

Formal opening of the Twenty-Seventh Annual Meeting of the Woman s Auxiliary to the American Medical Association Gold Room Hotel Fairmont

Mrs David B Allman, President Presiding

Invocation Reverend T Christie Innes Pastor, Calvary Presbyterian Church

Pledge of Loyalty to the Woman s Auxiliary to the American Medical Association Mrs Luther H Kice, Immediate Past President, Woman s Auxiliary

Greetings Honorable Therese Meikle, J D, Judge of Superior Court, San Francisco, William L Bender, M D, President, San Francisco County Medical Society

Address of Welcome Mrs William R Molony, Jr, President Woman's Auxiliary to the California Medical Association

Response Mrs Truman Caylor

Presentation of Convention Chairman Mrs Clifford Long

Introductions Mrs David B Allman, President

Presentation of President-Elect, Mrs Arthur A. Herold.

Roll Call Mrs Harry M Gilkey

Minutes of the 26th Annual Meeting Mrs Harry M Gilkey

Rules of Order Mrs Carl N Neupert

Credentials and Registration Mrs Norman Epstein

Address of the President Mrs David B Allman

REPORTS OF OFFICERS

President-Elect Mrs Arthur A Herold

First Vice President Mrs Harold F Wahlquist

Second Vice President Mrs Henry Garnjobst

Third Vice President Mrs W E Hoffman

Fourth Vice President Mrs Mason G Lawson

Treasurer Mrs George Turner
(including report of the auditor)

Constitutional Secretary Mrs Harry M Gilkey

12 30 p m

Luncheon in honor of the Past Presidents of the Woman's Auxiliary to the American Medical Association, Venetian Room, Hotel Fairmont Tickets $3 (tax and gratuity included)
Mrs David B Allman, President, presiding

Guest Speaker Dr Ernest B Howard, Assistant Secretary, American Medical Association

2 p m

Report of the Board of Directors Mrs David B Allman

Reports of Chairmen of Standing Committees

- Finance Mrs Scott C Applewhite.
- Hygeia Mrs Herbert W Johnson.
- Legislation. Mrs Bruce Schaefer
- Organization Mrs Harold F Wahlquist.
- Program Mrs Leo J Schaefer
- Publications Mrs James P Simonds
- Public Relations Mrs Paul C Craig
- Revisions Mrs Eustace A Allen.

Report of Special Committee

- Reference Mrs Rollo K Packard

Report of the Historian Mrs Jesse D Hamer

Report of Central Office and Bulletin Circulation Miss Margaret Wolfe

Report of the Nominating Committee (first reading) Mrs Luther H Kice, Chairman

Election of the 1951 Nominating Committee.

5 30 p m

Inaugural Meeting of the American Medical Association, Gold Ballroom, Palace Hotel

Members of the Woman's Auxiliary and guests are welcome

Wednesday, June 28

9 a m

General Session of the Woman's Auxiliary to the American Medical Association, Venetian Room, Fairmont Hotel
Mrs David B Allman, President, Presiding

Minutes Mrs Harry M Gilkey

Announcements Mrs Clifford Long

Credentials and Registration Mrs Norman Epstein.

In Memoriam Mrs Ralph B Eusden

Resolutions Mrs Louis K Hundley

Reports of State Presidents

12 30 p m

Annual Luncheon in honor of Mrs David B Allman, President, and Mrs Arthur A Herold, President-Elect, Peacock Court, Mark Hopkins Hotel Tickets $3 50 (tax and gratuity included) Mrs Jesse D Hamer, Past President, Presiding

Guests of Honor Dr Ernest E Irons, Past President, American Medical Association, Dr Elmer L Henderson, President, Dr Louis H Bauer, Chairman of the Board of Trustees, Dr J J Moore, Treasurer, Dr George F Lull, Secretary and General Manager, and the members of the Advisory Council to the Woman's Auxiliary

3 p m

AFTERNOON SESSION

Unfinished Business

New Business

Report of the Nominating Committee. Mrs Luther H Kice.

Election of Officers

Installation of Officers and Presentation of President's Pin Mrs Rollo K. Packard

Inaugural Address Mrs Arthur A Herold

Courtesy Resolutions Mrs F Justin McCarthy

Minutes Mrs Harry M Gilkey

Adjournment

4 00 p m

Meeting of the Board of Directors, Venetian Room. Mrs Arthur A Herold, presiding

Thursday, June 29

9 30 a m

Conference of National President, President-Elect and Chairmen of Standing Committees and State Presidents and Presidents-Elect, Green Room Mrs Arthur A Herold, presiding

7 p m

Annual Dinner of the Woman's Auxiliary to the American Medical Association for members, husbands and guests Tickets $5 (including tax and gratuities) Gold Room Dress optional Mrs Clifford Long, presiding

9 p m

Reception and Ball in honor of the President of the American Medical Association, Gold Ballroom, Palace Hotel

12 30 p m

Sightseeing Trips

(*a*) Across Golden Gate Bridge and into Marin County to Muir Woods (Buses will depart from and return to Hotel Fairmont.) Tickets $3 16 (tax included)

(*b*) Trip to Stanford University Tickets $4 04 (tax included)

Golf and Swimming

Arrangements have been made for golf and swimming for members of the Woman's Auxiliary and guests

Golf

Monday, June 26, Presidio Golf Club

Thursday, June 29, Green fee $2

Call Mrs Loren R Chandler, Fi 6-5313

Swimming

Pool of the Woman's Athletic Club Guest card for all departments may be secured Fee $1

Call Mrs Edmund Morrissey, Fi 6-0284

Local Committee on Convention Arrangements

General Chairman

Mrs Clifford Long

Honorary Chairmen

Woman's Auxiliary to the California Medical Association
Mrs William R. Molony Jr, President
Mrs Stanley Truman, President-Elect
Mrs Raymond T Wayland, Past President

Vice Chairmen

Mrs William Newman
Mrs Norman D Morgan
Mrs Harry Hund
Mrs Albert Boles

Credentials and Registration

Mrs Norman Epstein, Chairman
Mrs Mathew Hosmer, Co-Chairman

Headquarters

Mrs Robertson Ward, Chairman
Mrs Ellsworth Quinlan, Co-Chairman

Finance

Mrs Howard Dixon, Chairman
Mrs Walter Lawrence, Co-Chairman

Tickets

Mrs Thomas Fullenlove, Chairman
Mrs. Frederick Northway, Co-Chairman

Publicity

Mrs F Justin McCarthy, Chairman
Mrs Albert Kulchar,
Mrs Albert Boles, Co-Chairmen

Printing and Supplies

Mrs T Edward Bailly Jr, Chairman
Mrs William Wagner, Co-Chairman

Junior Aids

Mrs Edmund Morrissey, Chairman
Mrs Frank Hand, Co-Chairman

Flowers

Mrs Percival Dolman, Chairman
Mrs Frederick Scatena, Co-Chairman

Music

Mrs Francis H Redewill, Chairman

Hospitality

Mrs Daniel Morton, Chairman
Mrs H Brodie Stephens, Co-Chairman

Information

Mrs A Justin Williams, Chairman
Mrs M L Montgomery, Co-Chairman

Tea, Monday, June 26

Mrs Jesse Carr, Chairman
Mrs Charles Noble, Co-Chairman

Past Presidents' Luncheon
Tuesday, June 27

Mrs Keene O Haldeman, Chairman
Mrs Norman D Morgan, Co-Chairman

Annual Luncheon
Wednesday, June 28

Mrs William Newman, Chairman
Mrs Roger McKenzie, Co-Chairman

Annual Dinner
Thursday, June 29

Mrs William A Carroll, Chairman
Mrs Henry Gardner, Co-Chairman

Decorations

Mrs Stanley Burton

Golf and Swimming

Mrs Loren R. Chandler
Mrs Edmund Morrissey

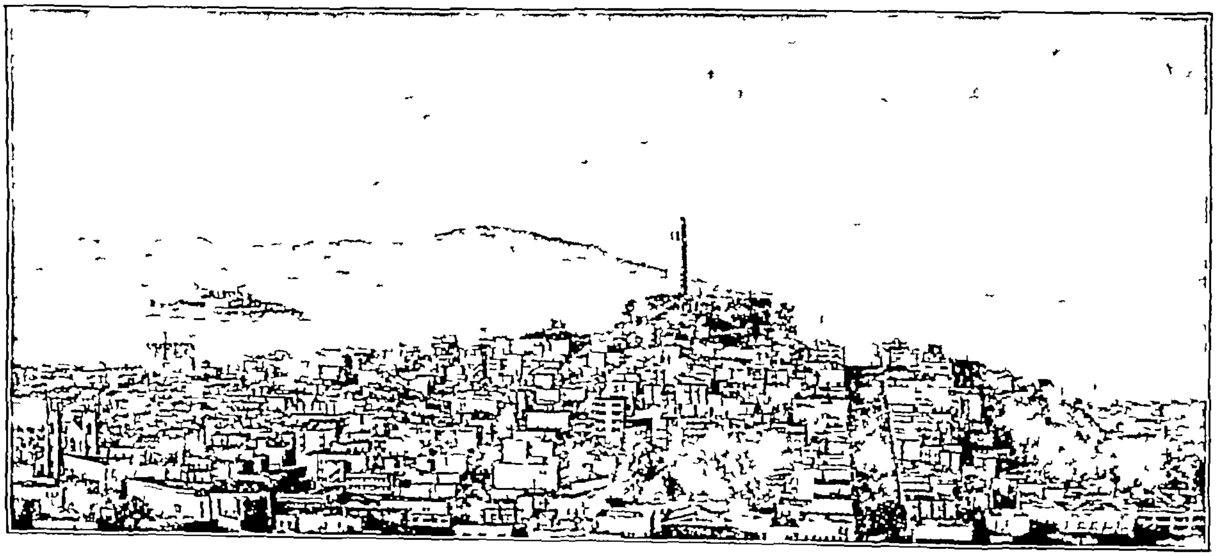
National Committees

Nominating Mrs Luther H Kice, Chairman, Mrs Truman E. Caylor, Mrs Paul C. Craig, Mrs George Turner, Mrs. Edgar E. Quayle, Mrs Charles Waas, Mrs H E. Christenberry

Election Mrs Donald R. Wright.

Timekeepers Mrs Norman Nathanson and Mrs E W Jackson

Reading Mrs James P Simonds, Chairman, Mrs William E Dodd, Mrs Harry M Gilkey, Miss Margaret Wolfe.



TELEGRAPH HILL, ALCATRAZ AND THE MARIN COUNTY SHORE

Sponsored by San Francisco Hospital and Health Department and Combined Staff of University of California and Stanford University Medical Schools

P M

2 00 *Cytologic Diagnosis of Cancer*

Milton Rosenthal, Clinical Instructor in Pathology, Lecturer in Obstetrics and Gynecology

Richard Skahen, Research Fellow in Obstetrics and Gynecology

2 20 Herniation of the Small Intestine Roentgenologic Demonstration.

A Justin Williams, Assistant Clinical Professor, Radiology, University of California Medical School

2 40 Common Skin Diseases Diagnosis and Treatment

Dwight Morrow, Clinical Instructor in Dermatology, University of California Medical School

3 00 Demonstration of Fresh Pathologic Specimen

A Cox, Professor of Pathology, Stanford University School of Medicine

3 20 Case Demonstrations Neurologic.

Al Lubin, Assistant Clinical Professor, Stanford University School of Medicine

3 40 Demonstration of Various Clinical Signs

J Hatch, Assistant Clinical Professor in Medicine, Stanford University School of Medicine

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Thursday, June 29

A M

9 00 Cataract

Alfred E. Maumenee, Professor of Ophthalmology, Stanford University School of Medicine

10 00 Cholecystectomy

Leon Goldman, Associate Professor, University of California Medical School

11 00 Plastic Surgery of Hand

Sterling Bunnell

L D Howard, Assistant Clinical Professor of Surgery, Stanford University Medical School

Sponsored by Medical Department of Stanford University School of Medicine

P M

2 00 Demonstration by the Diabetic Clinic, Stanford University School of Medicine

1 Simple Laboratory Methods

Irene McPherrin, Stanford University School of Medicine

2 Skin Reactions to Insulin

Harold Harvey, Instructor in Medicine, Stanford University School of Medicine

3 Insulin Atrophies

Herbert Jacobs, Instructor in Medicine, Stanford University School of Medicine

2 25 Diabetic Retinopathy Pictures of Fundus

A E Maumenee, Professor of Ophthalmology, Stanford University School of Medicine.

2 40 Problem of Overweight Patients with Diabetes Panel Discussion

3 00 Stanford University Hospitals, Diet Rounds

Lowell A Rantz, Associate Professor in Medicine, Stanford University School of Medicine

Nancy Hooper, Dietetic Department, Stanford University Hospitals

Demonstration of regular and special diets A teaching exercise conducted regularly for medical students, house officers, nurses and dieticians

3 30 Exophthalmos in Thyrotoxicosis

1 Medical Aspects

Francis Greenspan, Instructor in Ophthalmology Stanford University School of Medicine

2 Ophthalmologic Aspects

A E Maumenee, Professor in Ophthalmology, Stanford University School of Medicine.

GENERAL SCIENTIFIC MEETINGS

AUDITORIUM OF HIGH SCHOOL OF COMMERCE

Monday, June 26—2 p m

Henry R Viets, Chairman, Council on Scientific Assembly, *Presiding*

ATOMIC ENERGY COMMISSION SYMPOSIUM

Atomic Energy in War and in Peace

Gordon E. Dean, U S Atomic Energy Commission

Atomic Energy in War and in Peace Medical Aspects

Shields Warren, Director, Division of Biology and Medicine, *U S Atomic Energy Commission*

In War

The Burn Problem

Everett Evans, Professor of Surgery and Laboratory Director for Surgical Research, Medical College of *Virginia*

The Acute Radiation Syndrome

John Z Bowers, Deputy Director, Division of Biology and Medicine, U S Atomic Energy Commission

Diagnosis and Treatment of Radiation Injuries

Eugene Cronkite, Officer in Charge of the Hematology Department, Naval Medical Research Institute, Bethesda, Md

Civil Defense Aspects

Norvin C Kiefer, Director, Health Resources Division, National Security Resources Board

In Peace

Medical Applications of Tracer Technics

Hardin Jones, Associate Director, Medical Physics and Biology, Radiation Laboratory, University of California, Berkeley, Calif

Diagnostic and Therapeutic Use of Radioactive Phosphorus

Joseph F Ross, Associate Professor of Medicine, Boston University School of Medicine, Boston

Diagnostic and Therapeutic Use of Radioactive Iodine

Dwight Clark, Associate Professor of Medicine and Secretary to the Department of Surgery, University of Chicago, Chicago

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Tuesday, June 27—9 a m

Dr. Michael E DeBakey, Member, Council on Scientific Assembly, Presiding

The End Results in Patients with Carcinoma of the Colon and Rectum

Frank H Lahey, Director of Surgery, Lahey Clinic, Boston

9 30 a m **Recent Trends in Antibiotic Therapy**
William M M Kirby, Associate Professor of Medicine, University of Washington, Seattle.

10 00 a m **An Analysis of Drugs Used in Allergy**
Chauncey D Leake, Vice President, University of Texas, Galveston, Texas

10 30 11 00 a m —**Intermission**
Stanley P Reimann, Member, Council on Scientific Assembly, Presiding

11 00 a m **Benign Obstruction of the Lower Esophagus**
Nathan A Womack, Professor of Surgery, University of Iowa, Iowa City

11 30 a m **Psychiatry in 1950**
C Charles Burlingame, Director, Institute of Living, Hartford, Conn

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Tuesday, June 27—2 p m

Alphonse McMahon, Member, Council on

Scientific Assembly, Presiding

The Present Status of Cortisone, ACTH and Related Substances in General Medicine
Philip S Hench, Mayo Clinic, Rochester, Minn

2 30 p m **Protein Metabolism in Surgical Patients**
I S Ravdin, Professor of Surgery, University of Pennsylvania, Philadelphia

3 00 p m **Clinical Studies in Vagotomized Patients**
Waltman Walters, Mayo Clinic, Rochester, Minn

3 30-4 00 p m **Intermission**
Carl A. Lincke, Member, Council on Scientific Assembly, Presiding

4 00 p m. **Use and Abuse of Estrogens**
J P Pratt, Surgeon in-Charge, Division of Gynecology and Obstetrics, Henry Ford Hospital, Detroit

4 30 p m **The American Physician and His Opportunities for Increased Service Through Public Health**
James Stevens Simmons, Dean, School of Public Health, Harvard University, Boston.

THE PROGRAMS OF THE SECTIONS

Outline of the Scientific Proceedings

The following papers are announced to be read before the various sections The order here is not necessarily the order that will be followed in the Official Program The Official Program will be similar to the programs issued in previous years and will contain the final program of each section with abstracts of the papers as well as lists of committees program of the Inaugural Meeting list of entertainments and other information To prevent misunderstandings and protect the interest of advertisers it is here announced that this Official Program will contain no advertisements It is copyrighted by the American Medical Association and will not be distributed before the session A copy will be given to each Fellow on registration

SECTION ON ANESTHESIOLOGY

MEETS IN HALL 2 MASONIC TEMPLE

OFFICERS OF SECTION

Chairman—Frederic W Clement, Toledo, Ohio
Vice Chairman—Scott M Smith, Salt Lake City
Secretary—John S Lundy, Rochester, Minn
Executive Committee—Ralph M Tovell, Hartford, Conn , C Walter Metz, Denver, Frederic W Clement, Toledo, Ohio

Wednesday, June 28—2 p m

BUSINESS MEETING FOR PRESENTATION OF RESOLUTIONS TO HOUSE OF DELEGATES

REPORT OF DELEGATES ON 1949 CLINICAL SESSION AND MATTERS OF INTEREST AT PRESENT

A Preliminary Report on the Activities of the Anesthetic Study Committee of the Medical Society of the County of Kings, New York
Irving M Pallin, Brooklyn
Discussion to be opened by Frederick P Haugen, Portland, Ore., and Henry K. Beecher, Boston

Anesthesia for Mitral Commissurotomy Preliminary Report
Henry S Ruth, Haverford, Pa , and Kenneth K. Keown and D Dwight Grove, Philadelphia
Discussion to be opened by Lloyd H Mousel, Seattle, and William O McQuiston, Peoria, Ill

Factors Influencing Resistance to Anoxic Anoxia.
J L Bollman and A N Fazio, Rochester, Minn
Discussion to be opened by Fred C. Dye, San Antonio, Texas, and Ernest A Doud, San Diego, Calif

Controlled Clinical Evaluation of Three Curare Preparations
Donald W Hesselschwerdt, Iowa City, Edwin L Rushia, Little Rock, Ark , and Lucien E Morris and Stuart C. Cullen, Iowa City
Discussion to be opened by Frank J Murphy, San Francisco, V K Stoelting, Indianapolis, and John R Lincoln, Portland, Maine.

Pheochromocytomas The Anesthetic Problem During Surgical Treatment.
E M. Papper and Virginia Apgar, New York.
Discussion to be opened by Albert J Ochsner, New Orleans, and William B Neff, San Francisco

Thursday, June 29—2 p m

BUSINESS MEETING

ELECTION OF OFFICERS

Diagnostic and Therapeutic Nerve Block Indications for Its Use R Charles Adams, Rochester, Minn

Necessity for Roentgenograms During Diagnostic and Therapeutic Nerve Blocks
John W Pender and David G Pugh Rochester, Minn

Use of Tetracaine Hydrochloride Nerve Block and Infiltration Analgesia, Therapeutic and Diagnostic Blocks 2,500 Cases Daniel C Moore, Seattle
Discussion to be opened by John J Bonica Tacoma, Wash , John W Winter San Antonio Texas, and Richard H Barrett, Hanover N H

Chairman's Address Surgery Before the Days of Anesthesia Frederic W Clement Toledo, Ohio

Use of Various Plastic Catheters in the Subarachnoid and Peridural Spaces for the Continuous Administration of Anesthetics and Therapeutic Medicaments

Harold H Davidson, Robert A Hingson and Louis M Hellman, Baltimore

Discussion to be opened by John W Shuman Jr, Los Angeles, and Charles C Wycoff, San Francisco

Friday, June 30—2 p m

JOINT MEETING WITH THE SECTION ON OBSTETRICS AND GYNECOLOGY IN AUDITORIUM OF VETERANS WAR MEMORIAL

James R Bloss, Huntington, W Va, Presiding

Choice of Anesthesia for Vaginal Surgical Procedures

A E Morrison and Charles F McCuskey, Los Angeles

Discussion to be opened by Donald W De Carle, San Francisco, and Bruce M Anderson, Oakland, Calif

SYMPOSIUM ON PAIN RELIEF IN OBSTETRICS

Frederic W Clement, Toledo, Ohio, Moderator

Choices of Analgesia During the First Stage of Labor

Curtis J Lund, New Orleans

Choice of Anesthesia for Normal Delivery

Earle W Cartwright, Pasadena, Calif

Choices of Anesthesia for Operative Vaginal and Abdominal Delivery

R J Whitacre and P G Cressman, East Cleveland, Ohio

Discussion on papers of Dr Lund, Dr Cartwright and Drs Whitacre and Cressman to be opened by Scott M Smith, Salt Lake City, Donald C Tollefson, Los Angeles, Robert A Hingson, Baltimore, and William H Masters, St Louis

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SECTION ON DERMATOLOGY AND SYPHILOLOGY

MEETS IN BANQUET ROOM OF CALIFORNIA HALL

OFFICERS OF SECTION

Chairman—Clinton W Lane, St Louis

Vice Chairman—Norman Epstein, San Francisco

Secretary—John H Lamb, Oklahoma City

Executive Committee—Henry E Michelson, Minneapolis, Anthony C Cipollaro, New York, Clinton W Lane, St Louis

Wednesday, June 28—9 a m

Chairman's Address Verruca, Dermatologic Problem

Clinton W Lane, St Louis

The L E Test in Acute Disseminated Lupus Erythematosus John R Haserick, Cleveland

Discussion to be opened by John F Madden, St Paul

The Adult Form of Chronic Porphyria with Light Sensitivity

Louis A Brunsting, Harold L Mason and Robert A Aldrich, Rochester, Minn

Discussion to be opened by Donald M Pillsbury, Philadelphia

Lymphocytoma Cutis Report of Two Cases

A B Loveman and M T Fliegelman, Louisville, Ky

Discussion to be opened by Zola K Cooper, St Louis

Is Mycosis Fungoides a Reticuloendothelial Neoplastic Entity?

Edward P Cawley, Arthur C Curtis and James E K Leach, Ann Arbor, Mich

Discussion to be opened by Richard S Weiss, St Louis

Dermatitis from Local Anesthetics, with a Review of 107 Cases from the Literature

C Guy Lane, Boston, and Ralph H Luikart II, Santa Barbara, Calif

Discussion to be opened by Earl D Osborne, Buffalo

Thursday, June 29—9 a m

ELECTION OF OFFICERS

The Distinguished Lecture in Dermatology Ringworm of the Hands and Feet (Historical Review)

James H Mitchell, Chicago

Mycologic and Histopathologic Technics in the Study of Fungus Infections

George M Lewis, Wilbert Sachs and Mary E Hooper, New York.

Discussion to be opened by Sture A M Johnson, Madison, Wis

Pyogenic Infections of the Skin An Etiologic Factor in Acute Glomerulonephritis of Children.

J Lamar Callaway and Harry B O'Rear, Durham, N C

Discussion to be opened by Everett Seale, Houston, Texas

Congenital Vascular Anomalies Case Reports and Discussion of Unusual Vascular Lesions

Acors W Thompson and June Carol Shafer, Arlington, Va

Discussion to be opened by Harry L Arnold, Honolulu, T H

Fascial Hernias of the Legs

Maximilian E Obermayer and J Walter Wilson, Los Angeles

Discussion to be opened by J V Van Cleve, Wichita, Kan

Lipomelanotic Reticular Hyperplasia of Lymph Nodes

T C Laipply and Cleveland J White, Chicago

Discussion to be opened by Frank Grauer, Washington, D C

Friday, June 30—9 a m

SYMPOSIUM ON THERAPY

Modern Treatment of Acne

George C Andrews, New York.

Discussion to be opened by Merlin T Maynard, San Jose, Calif

Treatment of Psoriasis with Undecylenic Acid by Mouth

Herbert Rattner, Chicago and Herman Harold Rodin, South Bend, Ind

Discussion to be opened by A Benson Cannon, New York

Bromide Intoxication Treated with Diuretic Chlorides

T C Cornbleet, Chicago

Discussion to be opened by C P Bondurant, Oklahoma City

The Value of Penicillin, Chloramphenicol and Aureomycin in the Treatment of Syphilis

Harry Robinson Sr and Harry Robinson Jr., Baltimore

Discussion to be opened by W B Guy, Pittsburgh

Treatment of Chronic Cutaneous Problems with Calciferol
Lawrence C Goldberg and Helen L T Dexter, Cincinnati
Discussion to be opened by D T Gandy, Houston, Texas

Use of the Hypospray in Dermatology
Robert H Preston, Robert G Thompson and Leon Goldman, Cincinnati
Discussion to be opened by Joseph M Hitch, Raleigh, N C

SECTION ON DISEASES OF THE CHEST

MEETS IN HALL 1 OF MASONIC TEMPLE

OFFICERS OF SECTION

Chairman—Walter E Vest, Huntington, W Va
Vice Chairman—Alvis E Greer, Houston, Texas
Secretary—Jay A Myers, Minneapolis
Executive Committee—S U Marietta, Washington, D C, Walter E Vest, Huntington, W Va

Wednesday, June 28—9 a m

Chairman's Address Shakespeare's Knowledge of Chest Conditions Walter E Vest, Huntington, W Va.

An Analysis of Approximately 200,000 X-Ray Inspections of the Chests of Admissions to General Hospitals
Wililam Siegal, Robert E Plunkett and Herman E. Hilleboe, Albany, N Y
Discussion to be opened by H Corwin Hinshaw, San Francisco

Carcinoma of the Lung Duration of Life of Persons Not Treated Surgically Eli H Rubin, New York
Discussion to be opened by Alfred Goldman, Beverly Hills, Calif, and Ralph Adams, Woodbury, Tenn

Pulmonary Mycoses Coccidioidomycosis and Pulmonary Cavitation A Study of 92 Cases
William A Winn, Springville, Calif
Discussion to be opened by Charles E Smith, Berkeley, Calif, and O J Farness, Tucson, Ariz.

Care of Tuberculous Veterans A Continuing Problem.
John B Barnwell, Washington, D C.

Thursday, June 29—9 a m

ELECTION OF OFFICERS

Segmental Resection for Pulmonary Diseases
William S Conklin, Portland, Ore.

Suggestions for the Clinical Diagnosis of the Patient with Abnormal Chest X-Ray Shadows
John F Briggs, St Paul
Discussion to be opened by Seymour M Farber, San Francisco, and Robert J Anderson, Washington, D C.

An Ethnic Reservoir of Tuberculosis
H DeLien, Washington, D C
Discussion to be opened by W P Shepard, San Francisco

Early Detection of Bronchogenic Carcinoma
Donald L Paulson and Robert R Shaw, Dallas, Texas

Treatment of Tuberculous Laryngitis by Chemotherapy
Linden J Wallner, George C Turner, Meyer R Lichtenstein and Henry C Sweany, Chicago

Pulmonary Histoplasmosis Review of the Published Cases and Discussion of Two Cases Treated by Lobectomy
Corrin H Hodgson, O C Clagett and L A Weed, Rochester, Minn
Discussion to be opened by Arthur W Duryea, Alexandria, La

Idiopathic Spontaneous Pneumothorax
Felix A Hughes Jr, Memphis, Tenn

SECTION ON EXPERIMENTAL MEDICINE AND THERAPEUTICS

MEETS IN BOYS AND GIRLS GYMNASIUM,
HIGH SCHOOL OF COMMERCE

OFFICERS OF SECTION

Chairman—McKeen Cattell, New York
Vice Chairman—James A Greene, Houston, Texas
Secretary—Carl V Moore, St Louis
Executive Committee—Walter Bauer, Boston, Dwight L Wilbur, San Francisco, McKeen Cattell, New York.

Wednesday, June 28—9 a. m

Oral Administration of Vitamin B$_{12}$ in the Treatment of Pernicious Anemia
B E Hall, Rochester, Minn, F H Bethel, A A Cintron-Rivera and S Miller, Ann Arbor, Mich, and D C Campbell, Rochester, Minn
Discussion to be opened by Garnett Cheney, San Francisco

SYMPOSIUM ON ACTH AND CORTISONE

Effects of Cortisone and Pituitary ACTH on Rheumatic Diseases
Philip S Hench, Charles H Slocumb, Howard F Polley and Edward C Kendall, Rochester, Minn.

Effects of ACTH on Rheumatic Fever and Rheumatic Carditis Benedict F Massell, Boston

Effects of ACTH on the Hypersensitive State
John Eager Howard, Richard A Carey, A McGehee Harvey, Albert L Katters Jr. and Walter L Winkenwerder, Baltimore

Use of ACTH and Cortisone in Lymphomas and Leukemias
O H Pearson and L P Eliel, New York.

Physiologic Effects of Cortisone and ACTH in Man.
Randall G Sprague, Rochester, Minn.
Discussion on papers included in symposium to be opened by Richard Freyberg and T Duckett Jones, New York, Laurance W Kinsell, Oakland, Calif, Theron G Randolph, Chicago, and J W Conn, Ann Arbor, Mich

Thursday, June 29—9 a m

BUSINESS MEETING

ELECTION OF OFFICERS

Chairman's Address Dosage in the Therapy of Cardiovascular Disease McKeen Cattell, New York.

Pharmacologic Properties of Antihistaminics in Relation to Allergic and Nonallergic Diseases
Earl R Loew, Boston.
Discussion to be opened by Willard S Small, Pasadena, Calif

Results of Treatment of Grave's Disease and Toxic Nodular Goiter with Radioactive Iodine
E Perry McCullagh and Charles E Richards, Cleveland
Discussion to be opened by Sidney C. Werner, New York.

Administration of Massive Dosage of Estrogen to Breast and Prostate Cancer Patients Blood Levels Attained Roy Hertz, Bethesda, Md.
Discussion to be opened by George C Escher, New York.

Therapeutic Effects of Terramycin in Experimental Rickettsial Infections John C Snyder, Boston.
Discussion to be opened by Harry M Rose, New York, and Herald R Cox, Pearl River N Y

Alteration in Permeability of Membranes in Infections
George T Harrell Winston-Salem, N C.

Friday, June 30—9 a m

JOINT MEETING WITH THE SECTION ON INTERNAL MEDICINE

SYMPOSIUM ON ANTIBIOTICS

A New Method for Treatment of Brucellosis (Combined Use of Aureomycin and Dihydrostreptomycin)

Wallace E Herrell, Rochester, Minn, and Tracy E Barber, Austin, Minn

Discussion to be opened by K T Meyer, San Francisco, and C Wesley Eisele, Chicago

Speculations on the Mechanism of Cure of Subacute Bacterial Endocarditis

Thomas H Hunter, St Louis

Revision of Diagnostic Criteria and Therapeutic Technics in Subacute Bacterial Endocarditis

Charles K Friedberg, New York

Discussion on papers of Drs Hunter and Friedberg to be opened by Arthur L Bloomfield and Ernest Jawetz, San Francisco

SYMPOSIUM ON TREATMENT OF DISEASES OF THE PACIFIC

Chemotherapy of Filariasis-Bancrofti Under Field Conditions James I Knott, San Diego, Calif

The Current Status of Therapy in Leprosy

Frederick A Johansen and Paul T Erickson, Carville, La

Modern Treatment of Plague

Karl F Meyer, San Francisco

Diagnosis and Treatment of Q Fever

William H Clark, Berkeley, Calif

Discussion on papers of Drs Knott, Johansen and Erickson, Meyer and Clark to be opened by George T Harrell, Winston-Salem, N C

SECTION ON GASTRO-ENTEROLOGY AND PROCTOLOGY

MEETS IN AUDITORIUM OF MASONIC TEMPLE

OFFICERS OF SECTION

Chairman—Russell S Boles, Philadelphia
Vice Chairman—Frank G Runyeon, Reading, Pa
Secretary—Donovan C Browne, New Orleans
Executive Committee—Sara M Jordan, Boston, William H Daniel, Los Angeles, Russell S Boles, Philadelphia

Wednesday, June 28—9 a m

Advances in the Management of Jaundice Experiences with 500 Jaundice Cases

Frederick Steigmann, Chicago

Discussion to be opened by T L Althausen, San Francisco

Hormone Studies in Peptic Ulcer ACTH and Cortisone, Preliminary Report

David J Sandweiss, Harry C Saltzstein, Arthur Parks and S S Scheinberg, Detroit

Discussion to be opened by Sara M Jordan, Boston

An Internist Views the Surgical Treatment of Peptic Ulcer

Walter L Palmer, Joseph B Kirsner and Erwin Levin, Chicago

Discussion to be opened by Carleton J Mathewson, San Francisco

Massive Upper Digestive Tract Hemorrhage of Unexplained Origin

I R Jankelson and Leo R Milner, Boston

The Role of Blood Transfusion in the Management of Bleeding Peptic Ulcer

H Marvin Pollard and Arnold Wollum, Ann Arbor, Mich

Management of Massive Hemorrhage

William F Lipp, Morton H Lipsitz, Elmer Milch and A H Aaron, Buffalo

Discussion of papers of Drs Jankelson and Milner, Pollard and Wollum and Lipp, Lipsitz, Milch and Aaron to be opened by Dwight L Wilbur, San Francisco, and Kenneth C Sawyer, Denver

Nutritional Problems Following Resection of the Small Intestine for Regional Ileitis

Everett D Kiefer and William T Arnold, Boston

Discussion to be opened by John H Fitzgibbon, Portland, Ore

Thursday, June 29—9 a m

ELECTION OF OFFICERS

Chairman's Address Russell S Boles, Philadelphia

Chloramphenicol and Antiulcer Factors in the Treatment of Chronic Ulcerative Colitis One Year Clinical Evaluation Z T Berkovitz, New York

Discussion to be opened by Robert J Rowe, Dallas, Texas, and M H Streicher, Chicago

Vagotomy for Idiopathic Ulcerative Colitis and Regional Enteritis Philip Thorek, Chicago

Discussion to be opened by Albert F R Andresen, Brooklyn, and Emile Holman, San Francisco

Retrorectal Tumors

Raymond J Jackman, P LeMon Clark III and Newton D Smith, Rochester, Minn

Discussion to be opened by A Gerson Carmel, Cincinnati.

The Colostomy Its Construction and Care

Frederick B Campbell and William C Schaerrer, Kansas City, Mo

Discussion to be opened by William H Daniel, Los Angeles

Causes and Treatment of Pruritus Ani

Claude C Tucker, Wichita, Kan

Discussion to be opened by Albert H Rowe, Oakland, Calif

Friday, June 30—9 a m

JOINT MEETING WITH SECTION ON PATHOLOGY AND PHYSIOLOGY

Therapy of Amebic Dysentery

J A Bargen, Rochester, Minn

Acute and Chronic Pancreatitis A C Ivy, Chicago

Problems on Gastrointestinal Necrosis

Grant Laing, Chicago

Nutritional Deficiencies

Tom D Spies and Robert E Stone, Birmingham, Ala

Discussion to be opened by Dwight L Wilbur, San Francisco

SECTION ON GENERAL PRACTICE

MEETS IN BOYS AND GIRLS GYMNASIUM, HIGH SCHOOL OF COMMERCE

OFFICERS OF SECTION

Chairman—Milton B Casebolt, Kansas City, Mo
Vice Chairman—Lester D Bibler, Indianapolis
Secretary—Thomas E Robinson, Salt Lake City
Executive Committee—Eric A Royston, Los Angeles, Winfred B Harm, Detroit, Milton B Casebolt, Kansas City, Mo

Wednesday, June 28—2 p m

Chairman's Address Milton B Casebolt, Kansas City, Mo

The General Practitioner as an Urologist

Elmer Hess, Russell B Roth and Anthony F Kominsky, Erie, Pa

Discussion to be opened by Carl E Burkland, Sacramento, Calif, and Russell B Roth, Erie, Pa

Bedside Management of Problems of Fluid Balance
Belding H Scribner, Marschelle H Power and E H Rynearson, Rochester, Minn
Discussion to be opened by Victor Richards and Dwight L Wilbur, San Francisco

Recent Advances in the Dietary and Medicinal Treatment of Arteriosclerosis
Lester M Morrison, Los Angeles

Groin Pain Due to Spasm of the Adductor Longus Muscle Treatment by Local Procaine Infiltration and Ethyl Chloride Spray
Janet Travell, New York.
Discussion to be opened by Philip Lewin, Chicago

Sciatica Differential Diagnosis and Treatment
Clark H Millikan, Rochester, Minn
Discussion to be opened by Joseph Barr, Boston, and C. Hunter Sheldon, Pasadena, Calif.

Results of Current Studies of a Specific Type of Streptococcus in the Etiology, Diagnosis and Treatment of Epidemic Poliomyelitis
Edward C Rosenow, Cincinnati

Head Pain and Headache from Ocular Origin.
A D Ruedemann, Detroit.
Discussion to be opened by Frederick C Cordes, San Francisco, and Kenneth Swan, Portland, Ore.

Thursday, June 29—2 p m

ELECTION OF OFFICERS

The Superiority of Combined Oral Estrogen-Androgen Therapy for Menopausal Syndrome
S J Glass, Los Angeles
Discussion to be opened by L F Hawkinson, Oakland, Calif, and Udall J Salmon, New York

The Management of Functional Bleeding Problems
E G Holmstrom, Salt Lake City
Discussion to be opened by Charles E McLennan, San Francisco

Applications in Office Practice of Sponge Biopsy A New Method in the Diagnosis of Cancer
Sidney A Gladstone, New York
Discussion to be opened by N Chandler Foot, New York, and Emil Novak, Baltimore

ROUND TABLE ON FRACTURES OF THE EXTREMITIES

Kellogg Speed, Chicago, Moderator

Fractures of the Shaft of the Femur
Gordon Mackay Morrison, Boston

Fractures About the Ankle Joint.
Frederick A. Jostes, St. Louis

Colles Fracture Ralph G Carothers, Cincinnati

Fractures of the Humerus Carl Davis Jr., Chicago

Fractures of the Forearm.
Barbara B Stimson, Poughkeepsie, N Y

Friday, June 30—9 a m

JOINT MEETING WITH THE SECTION ON PEDIATRICS IN AUDITORIUM OF HIGH SCHOOL OF COMMERCE

Intestinal Obstruction in the Newborn Infant.
Oswald S Wyatt, Minneapolis
Discussion to be opened by Clifford D Benson, Detroit, and Clifford Sweet, Oakland, Calif

Management of Acute Meningitis
J Harry Murphy, Omaha.
Discussion to be opened by Hulda E. Thelander, San Francisco

Diagnostic Drifts, Deceptions and Common Misses
M Pinson Neal, Columbia, Mo
Discussion to be opened by Oscar B Hunter, Washington, D C, and J B Bilderback, Portland, Ore.

Congenital Megacolon or Hirschsprung's Disease Its Successful Management by Surgical or Medical Means in Nine Cases
Alexander H Bill Jr, Seattle.
Discussion to be opened by Frederick C. Moll, Seattle, and L E. Harris, Rochester, Minn

Behavior Disturbances in Epileptic Children
Charles Bradley, Portland, Ore.
Discussion to be opened by William W Belford, San Diego, Calif, and E D Anderson, Minneapolis

Treatment of Bronchial Allergy in Children.
Ben F Feingold, Los Angeles
Discussion to be opened by Ralph Bowen, Houston, Texas, Albert H Rowe, Oakland, Calif., and Fred W Wittich, Minneapolis

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SECTION ON INTERNAL MEDICINE

MEETS IN AUDITORIUM OF HIGH SCHOOL OF COMMERCE

OFFICERS OF SECTION

Chairman—Arthur L Bloomfield, San Francisco
Vice Chairman—Ralph A Kinsella, St. Louis
Secretary—Walter L Palmer, Chicago
Executive Committee—Cecil J Watson, Minneapolis, M A Blankenhorn, Cincinnati, Arthur L Bloomfield, San Francisco

Wednesday, June 28—2 p m

Uses and Limitations of Steroids in the Treatment of Advanced Carcinoma of the Breast.
Samuel G Taylor III, Danely P Slaughter, Roger S Morris Jr. and L. Walter Fix, Chicago
Discussion to be opened by Frank E. Adair, New York, Ian G Macdonald, Los Angeles, and Walton Van Winkle Jr., Chicago

The Frank Billings Lecture Reflections on the Causation of Diabetes Mellitus
Russell M Wilder, Rochester, Minn.

The Pituitary-Thyroid-Adrenal Triangle
Jacob Lerman, Farahe Maloff, J H Means, B G Stall, J B Stanbury and Harry Statland, Boston.
Discussion to be opened by Willard O Thompson, Chicago, and Lawrence Kinsell, San Francisco

Hyperthyroidism Without Ostensible Hypermetabolism.
Sidney C Werner and Howard Hamilton, New York.
Discussion to be opened by M Paul Starr, Pasadena, Calif, and Edward D Robbins, Chicago

Radioactive Iodine Treatment of Intractable Angina Pectoris and Congestive Failure by Producing Hypothyroidism
Herrman L. Blumgart, A. Stone Freedberg and George S Kurland Boston
Discussion to be opened by D A. Rytand San Francisco, and Howard P Lewis, Portland, Ore

Observations on Protein, Salt and Adrenal Hormones in Cirrhosis of the Liver
Robert M Kark, Robert W Keeton, Nathaniel O Calloway and Robert H. Kyle, Chicago
Discussion to be opened by J A. Luetscher, San Francisco

Thursday, June 29—2 p m

ELECTION OF OFFICERS

Diagnostic Aspects of Carcinoma of the Lung Correlated with End Results of Surgical Treatment

Henry M Thomas Jr and William F Reinhoff Jr, Baltimore

Discussion to be opened by Verne R Mason, Beverly Hills, Calif, and Emile F Holman, San Francisco

A Pheochromocytoma Successfully Removed with the Aid of Benzodioxane

Robert J Kositshek and Marcus Rabwin, Beverly Hills, Calif

Discussion to be opened by Howard R Bierman, San Francisco, and Morris H Nathanson, Los Angeles

Chairman's Address Some Problems of the Common Cold Arthur L Bloomfield, San Francisco

On the Nature and Treatment of Auricular Fibrillation

Myron Prinzmetal, Robert W Oblath, Eliot Corday, I C Brill and H E Kruger, Los Angeles

Discussion to be opened by William J Kerr, San Francisco

The Prophylaxis of Subacute Bacterial Endocarditis

A Carlton Ernstene, C J McGarvey and Jerome A Ecker, Cleveland

Discussion to be opened by Charles K. Friedberg, New York, L A Rantz, San Francisco, and Edward C Rosenow Jr, Pasadena, Calif

Nonspecific (Benign) Pericarditis

William B Porter, Oscar W Clarke and R R Porter, Richmond, Va

Discussion to be opened by Arlie R Barnes, Rochester, Minn, and LeRoy H Briggs, San Francisco

Friday, June 30—9 a m

JOINT MEETING WITH THE SECTION ON EXPERIMENTAL MEDICINE AND THERAPEUTICS IN BOYS AND GIRLS GYMNASIUM, HIGH SCHOOL OF COMMERCE

SYMPOSIUM ON ANTIBIOTICS

A New Method for Treatment of Brucellosis (Combined Use of Aureomycin and Dihydrostreptomycin)

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SYMPOSIUM ON TREATMENT OF DISEASES OF THE PACIFIC

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Current Status of Therapy in Leprosy

Frederick A Johansen and Paul T Erickson, Carville, La

Modern Treatment of Plague

Karl F Meyer, San Francisco

Diagnosis and Treatment of Q Fever

William H Clark, Berkeley, Calif

Discussion on papers of Dr Knott, Drs Johansen and Erickson and Drs Meyer and Clark to be opened by George T Harrell, Winston-Salem, N C

SECTION ON LARYNGOLOGY, OTOLOGY AND RHINOLOGY

MEETS IN AUDITORIUM OF CALIFORNIA HALL

OFFICERS OF SECTION

Chairman—William H Johnson, Santa Barbara, Calif
Vice Chairman—Harold L Hickey, Denver
Secretary—J Milton Robb, Detroit
Executive Committee—Fletcher D Woodward, Charlottsville, Va, Henry B Orton, Newark, N J, William H Johnston, Santa Barbara, Calif

Wednesday, June 28—2 p m

Complicated Fractures of the Maxillas

William A McNichols, Dixon, Ill

Discussion to be opened by Russell M Decker, Pasadena, Calif, and George A Friedman, New York

Nasopharyngeal Malignancy An Overlooked Condition

Harold L Hickey, Denver

Discussion to be opened by H James Hara, Los Angeles, and Robert C McNaught, San Francisco

The Relationship Between Tonsil and Adenoid Operations and Cleft Palate

Hugh Gibson Beatty, Columbus, Ohio

Discussion to be opened by Edward Daniel King, Los Angeles

Radiocobalt in Otolaryngology

Lewis Francis Morrison, San Francisco

Discussion to be opened by Bertram V A Low-Beer, San Francisco

Importance of Bronchial Involvement in Primary Tuberculosis of Childhood

Herman I Laff, Allan Hurst and Arthur Robinson, Denver

Discussion to be opened by Mervin C Myerson, Beverly Hills, Calif, and Paul C Samson, Oakland, Calif

Thursday, June 29—2 p m

EXECUTIVE SESSION

ELECTION OF OFFICERS

Chairman's Address Modern Trends of Surgery and Treatment in Otolaryngology

William H Johnston, Santa Barbara, Calif

Skull Anomalies Arthur C Jones, Boise, Idaho

Discussion to be opened by Guy L Boyden, Portland, Ore, and Gilbert Roy Owen, Los Angeles

Benign and Malignant Lesions of the Paranasal Sinuses

John F Tolan, Seattle

Discussion to be opened by Walter P Work, San Francisco, and George W Olson, Fresno, Calif

Role of Tracheotomy for the Prevention of Pulmonary Complications in the Postoperative and Severely Debilitated Patient

Joseph P Atkins, Philadelphia

Discussion to be opened by Joel J Pressman, Beverly Hills, Calif, and Julius A Weber, Seattle

Tonsillectomies and Poliomyelitis

Alden H Miller, Los Angeles

Discussion to be opened by Robert C Martin, San Francisco, and Victor Goodhill, Los Angeles

SECTION ON MISCELLANEOUS TOPICS

SESSIONS ON MILITARY MEDICINE AND SURGERY

MEETS IN WHITE ROOM OF MASONIC TEMPLE

OFFICERS OF SESSIONS

Chairman—Wendell G Scott, St Louis
Vice Chairman—William R Lovelace II, Albuquerque, N Mex
Secretary—William S Stone, Washington, D C

Wednesday, June 28—9 a m

Military Medicine and Surgery as a Specialty Joel T Boone, Washington D C

Discussion to be opened by Howard A Rusk, New York, and I S Ravdin Philadelphia

Medical Problems Encountered in Atomic Bomb Explosions James P Cooney, Washington D C

Discussion to be opened by Andrew H Dowdy Los Angeles and Shields Warren Boston

Treatment of High Intensity Thermal Burns Everett I Evans, Charlottesville, Va

Discussion to be opened by James Barrett Brown St Louis, and Edwin J Pulaski San Antonio, Texas

Treatment of Radiation Injuries J Garrott Allen, Chicago

Discussion to be opened by Stafford L Warren, San Francisco, and Eugene P Cronkite Bethesda, Md

Stress as a Factor in the Production of Neuropsychiatric Diseases Donald W Hastings Minneapolis

Discussion to be opened by Frederick R Hanson, Montreal Canada and David A Boyd Jr, Rochester, Minn

Civilian Defense Planning Norvin C Kiefer, Washington, D C

Discussion to be opened by James C Sargent, Milwaukee, and Robert H Flinn Washington, D C

Thursday, June 29—9 a m

Medical Problems in Chemical Warfare John R Wood, Army Chemical Center Md

Discussion to be opened by Franklin C McLean, Chicago, and George M Lyon, Washington, D C

Medical Research and Development in the Armed Forces George E Armstrong, Washington, D C

Discussion to be opened by L T Coggeshall and A C Ivy Chicago

Medical Problems Encountered in Undersea Craft H L Pugh, Washington D C

Discussion to be opened by O D Yarbrough and Howard T Karsner, Washington, D C

Communicable Disease Problems in the Armed Forces During Peace and War Joseph E Smadel, Washington, D C

Discussion to be opened by Norman Topping Washington, D C, and H A Reimann Philadelphia

Effects of Air Transportation on Clinical Conditions Analysis of 16,000 Case Reports in 1949 B A Strickland and J A Rafferty Randolph Field Texas

Discussion to be opened by Wallace H Graham Washington D C, and W R Lovelace II Albuquerque N Mex

Military Medicine and Its Relation to American Medicine Richard L Meiling Washington D C

Discussion to be opened by George E Armstrong, C A Swanson and Harry G Armstrong, Washington, D C

SECTION ON NERVOUS AND MENTAL DISEASES

MEETS IN BLACK ROOM OF MASONIC TEMPLE

OFFICERS OF SECTION

Chairman—Frederick P Moersch, Rochester Minn
Vice Chairman—A E Bennett, Berkeley Calif
Secretary—Francis M Forster, Philadelphia
Executive Committee—A R Vonderahe, Cincinnati, Francis J Gerty, Chicago, Frederick P Moersch, Rochester, Minn

Wednesday, June 28—9 a m

Traumatic Neurosis, Compensation Neurosis or Attitudinal Pathosis? Gordon R Kamman, St Paul

Discussion to be opened by George N Raines, Bethesda, Md, and Morris J Tissenbaum, Brooklyn

Transorbital Leukotomy in a State Hospital Program Matthew T Moore Philadelphia and Ralph L Hill and Wilbur M Lutz Warnersville Pa

Discussion to be opened by Walter Freeman Washington, D C and Margaret A Kennard, Portland Ore

The Attitude of the Physician Leo H Bartemeier, Detroit

Discussion to be opened by Karl M Bowman San Francisco, and Herbert S Ripley Seattle

Psychiatric Team Work An Integrated Therapy Esther Bogen Tietz and Martin Grotjahn, Los Angeles

Discussion to be opened by Philip Solomon, Beverly Hills, Calif, and Carl H Jonas San Francisco

Recent Biochemotherapeutic Developments in Psychiatry Johan H W van Ophuijsen New York

Discussion to be opened by A E Bennett, Berkeley Calif, and Edwin F Gildea, St Louis

Personality Structure in Relation to Antabuse Therapy of Alcoholism Paul W Dale and Franklin G Ebaugh, Denver

Discussion to be opened by Kenneth E Appel, Philadelphia, and David A Boyd Rochester, Minn

Thursday, June 29—9 a m

EXECUTIVE SESSION

ELECTION OF OFFICERS

Chairman's Address Neurologic Manifestations Associated with Dissecting Aneurysm of the Aorta Frederick P Moersch, Rochester, Minn

Recent Advances in the Treatment of Migraine A Review Arnold P Friedman and Theodore J C von Storch New York

Discussion to be opened by Caro W Lippman San Francisco, and E Miles Atkinson New York

Heredity of Epilepsy as Told by Twins William G Lennox Boston

Discussion to be opened by Knox H Finley and Robert B Aird, San Francisco

Cerebral Area Essential to Consciousness George N Thompson and J M Nielsen Los Angeles

Discussion to be opened by Percival Bailey, Chicago, and Fred H Hesser, Iowa City

Factors Influencing the Development of Cerebral Vascular Accidents George Wilson, Charles Rupp Helena E Riggs and William W Wilson Philadelphia

Discussion to be opened by Walter F Schaller and Edwin B Boldrey San Francisco

Management of Acute Poliomyelitis and Respiratory Insufficiency

Fred Plum and Harold G Wolff, New York.

Discussion to be opened by Joe R Brown, Rochester, Minn, and Roland P Mackay, Chicago

Friday, June 30—9 a m

Surgical Management of Cerebrovascular Accidents

E S Gurdjian and John E Webster, Detroit

Discussion to be opened by Howard C Naffziger and John E Adams, San Francisco

Intracranial Angiography

William J German, New Haven, Conn, William B Seaman, St Louis, Harvey A Humphrey, New Haven, Conn, and W Randolph Page, Hartford, Conn

Discussion to be opened by Edwin B Boldrey, San Francisco, and R B Raney, Los Angeles

Treatment of Spontaneous Subarachnoid Hemorrhage

Lester A Mount, New York.

Discussion to be opened by Bernard J Alpers, Philadelphia, and Tracy J Putnam, Beverly Hills, Calif

Surgical Therapy of Psychomotor Epilepsy

Percival Bailey and Frederic A Gibbs, Chicago

Discussion to be opened by A Earl Walker, Baltimore, and Hugh W Garol, San Francisco

Intramedullary Tumors of the Spinal Cord and Gliomas of the Intradural Filum Terminale The Fate of Patients Who Have These Tumors

Henry W Woltman, James W Kernohan, Winchell McK Craig and A W Adson, Rochester, Minn

Discussion to be opened by Ward W Wood, San Diego, Calif, and Arthur A Ward Jr, Seattle

Management of Residuals of Injuries to the Spinal Cord and Cauda Equina

Lewis J Pollock, Benjamin Boshes, Isadore Finkelman, Herman Chor, Alex J Arieff, Meyer Brown, Knowlton E Barber and Joseph G Kostrubala, Chicago, and Louis B Newman and Benjamin H Kesert, Hines, Ill

Discussion to be opened by Hans Reese, Madison, Wis, and L W Freeman, Indianapolis

SECTION ON OBSTETRICS AND GYNECOLOGY

MEETS IN AUDITORIUM OF VETERANS WAR MEMORIAL

OFFICERS OF SECTION

Chairman—James R Bloss, Huntington, W Va
Vice Chairman—Bernard J Hanley, Los Angeles
Secretary—Arthur B Hunt, Rochester, Minn
Executive Committee—William F Mengert, Dallas, Texas, Leroy A Calkins, Kansas City, Kan, James R Bloss, Huntington, W Va

Wednesday, June 28—2 p m

Application of Physiologic and Pathologic Principles to the Surgery of the Ovary

Emil Novak, Baltimore

Discussion to be opened by Ludwig A Emge, San Francisco, and Lyman W Mason, Denver

Pseudocyesis A Psychosomatic Study in Gynecology

Paul H Fried and A E Rakoff, Philadelphia

Discussion to be opened by David A Boyd, Rochester, Minn, and Irving Stein Sr, Chicago

Management of Pregnancy and Delivery Following Cesarean Section

Robert A Cosgrove, Jersey City, N J

Discussion to be opened by William G Thompson, Hollywood, Calif, Robert A Johnston, Houston, Texas, and Hobart M Kelly, Riverside, Calif

Physiologic Therapy for Urinary Stress Incontinence

Arnold H Kegel, Los Angeles

Selection of Methods and Technics for Surgical Correction of Stress Incontinence

Virgil S Counseller, Rochester, Minn

Discussion on papers of Drs Kegel and Counseller to be opened by Edward G Jones and Lowell F Bushnell, Los Angeles, and Daniel G Morton, San Francisco

Thursday, June 29—2 p m

ELECTION OF OFFICERS

Chairman's Address Causes of Fear Among Obstetric Patients James R Bloss, Huntington, W Va

Endocrine Patterns in Term Pregnancy After Abortion

Georgeanna Seegar-Jones, Baltimore

Discussion to be opened by Jean Paul Pratt, Detroit, and Pendleton Tompkins, San Francisco

The Problem of Cervical Stump Carcinoma

Charles H Hendricks, Columbus, Ohio

Discussion to be opened by Russell R de Alvarez, Seattle, and Charles E McLennan, San Francisco

Detection of Pelvic Cancer Howard W Jones, Baltimore

Discussion to be opened by Herbert F Traut, San Francisco, and Frederick H Falls, River Forest, Ill

Friday, June 30—2 p m

JOINT MEETING WITH THE SECTION ON ANESTHESIOLOGY

James R Bloss, Huntington, W Va, Presiding

Choice of Anesthesia for Vaginal Surgical Procedures

A E Morrison and Charles F McCuskey, Los Angeles

Discussion to be opened by Donald W De Carle, San Francisco, and Bruce M Anderson, Oakland, Calif

SYMPOSIUM ON PAIN RELIEF IN OBSTETRICS

Frederic W Clement, Toledo, Ohio, Moderator

Choices of Analgesia During the First Stage of Labor

Curtis J Lund, New Orleans

Choice of Anesthesia for Normal Delivery

Earle W Cartwright, Pasadena, Calif

Choices of Anesthesia for Operative Vaginal and Abdominal Delivery

R J Whitacre and P G Cressman, East Cleveland, Ohio

Discussion on papers of Dr Lund, Dr Cartwright and Drs Whitacre and Cressman to be opened by Scott M Smith, Salt Lake City, Donald C Tollefson, Los Angeles, Robert A Hingson, Baltimore, and William H Masters, St Louis

SECTION ON OPHTHALMOLOGY

MEETS IN AUDITORIUM OF CALIFORNIA HALL

OFFICERS OF SECTION

Chairman—A Ray Irvine, Beverly Hills, Calif
Vice Chairman—Albert N Lemoine, Kansas City, Mo
Secretary—Trygve Gundersen, Boston
Executive Committee—Everett L Goar, Houston, Texas, M Hayward Post, St Louis, A Ray Irvine, Beverly Hills, Calif

Wednesday, June 28—9 a m

Chairman's Address A Ray Irvine, Beverly Hills, Calif

Operative Results in Juvenile Glaucoma from a Pathologic Standpoint Brittain F Payne, New York

Clinical Application of Night Vision Tests
William J Holmes, Honolulu, Hawaii

Superficial Punctate Keratitis
Phillips Thygeson, San Jose, Calif

Choked Disk and Other Types of Edema of the Nerve Head
Placidus J Leinfelder, Iowa City

Dislocated Lens P Robb McDonald, Philadelphia.

Thursday, June 29—9 a m

EXECUTIVE SESSION

ELECTION OF OFFICERS

Complications and Their Solutions in a Series of Over One Hundred and Twenty Movable Post Enucleation Implants Performed During a Period of Thirty-Seven Months William Stone Jr , Boston

Greater Superficial Petrosal Neurectomy for the Relief of Chronic Bullous Keratitis
Lorand V Johnson and William A Nosik, Cleveland

Diagnosis of Multiple Oculomotor Paralyses
William E Krewson III, Philadelphia

Pituitary Adrenocorticotropic Hormone in the Treatment of Eye Diseases
J A Olson, E H Steffensen, R R Margulis, R W Smith and E L Whitney, Detroit.

Demonstration of New Instruments

Friday, June 30—9 a m

The Battle Against Blindness
Walter B Lancaster, Boston, and Franklin M Foote, New York

Primary Massive Separation of the Retina in Infants and Children. Parker Heath, Boston

Detachment and Aphakia Charles L Schepens, Boston

Objective Methods in the Investigation of Strabismus
Emanuel Krimsky, Brooklyn

Retinal Correspondence in Patient with Small Degree of Strabismus Arthur Jampolsky San Francisco

Goniopuncture A New Fistulizing Operation for Glaucoma Harold G Scheie, Philadelphia

SECTION ON ORTHOPEDIC SURGERY

MEETS IN BLACK ROOM OF MASONIC TEMPLE

OFFICERS OF SECTION

Chairman—Joseph S Barr, Boston
Vice Chairman—Walter P Blount, Milwaukee
Secretary—Charles N Pease, Chicago
Executive Committee—J Warren White, Greenville, S C , David M Bosworth, New York, Joseph S Barr, Boston

Wednesday, June 28—2 p m

Tarsal Anomalies and Peroneal Flat Foot
Frederick S Webster, Lincoln, Neb , and William M Roberts Gastonia N C
Discussion to be opened by Earl D McBride, Oklahoma City and Charles Young, Los Angeles

Venous Thrombosis Its Cause and Prevention.
Alton Ochsner, New Orleans
Discussion to be opened by Geza de Takats, Chicago, and Francis M McKeever, Los Angeles

Fractures About the Elbow in Children.
Walter P Blount, Milwaukee
Discussion to be opened by Vernon P Thompson, Los Angeles, and Lewis M Overton, Albuquerque, N Mex

Arthrodesis of Hip by Sliding Graft and Nail
Philip Wiles, London, England

Studies of Displaced Capital Femoral Epiphysis
Mather Cleveland and David M Bosworth, New York, John N Daly, Rochester, N Y , and Wallace Hess, New York.
Discussion to be opened by Robert J Joplin, Boston, and Edward L Compere, Chicago

New Procedure for Subluxation of the Distal End of the Ulna Frederick Lee Liebolt, New York
Discussion to be opened by H Relton McCarroll, St Louis, and John J Loutzenheiser, San Francisco

Thursday, June 29—2 p m

ELECTION OF OFFICERS

Common Problems in the Fit and Alinement of the Above Knee Suction Socket Artificial Leg
Charles O Bechtol, Oakland, Calif
Discussion to be opened by Robert Mazet Jr and Paul E McMaster, Los Angeles

Repair of Surface Defects of the Foot
James Barrett Brown, St Louis
Discussion to be opened by J Warren White, Honolulu, Hawaii, and Guy A Caldwell, New Orleans

Chairman's Address Joseph S Barr, Boston

Complications of Intramedullary Fixation of Fractures of the Femur
Walter G Stuck and Milton S Thompson, San Antonio, Texas
Discussion to be opened by Ralph Soto-Hall, San Francisco, and J Vernon Luck, Los Angeles

Fractures of Dorsal and Lumbar Vertebrae
Orren D Baab and M Beckett Howorth, New York
Discussion to be opened by Joseph M Janes, Rochester, Minn , and Donald King, San Francisco

Friday, June 30—2 p m

Fibroelastic Diathesis Carl E. Badgely, Ann Arbor, Mich
Discussion to be opened by Sture A M Johnson, Madison, Wis , and Harold E Crowe, Los Angeles

Experimental Study of the Effect of Pressure on the Healing of Bone Grafts
Lee T Ford, James O Lottes and J Albert Key, St Louis

Clinical Significance of Contact-Compression Factor in Bone Surgery
George W N Eggers, Galveston, Texas
Discussion on papers by Drs Ford, Lottes and Key and Dr Eggers to be opened by Leroy C Abbott, San Francisco, and Arch F O Donoghue, Sioux City Iowa

Simple Method of Bone Grafting for Nonunion of the Tibia Donald S Miller, Chicago
Discussion to be opened by Hamilton I Barnard, Denver, and I S McReynolds, Houston Texas

Experimental and Clinical Investigations of Peripheral Nerve Injuries of the Upper Extremities
George Perret, Iowa City
Discussion to be opened by Loyal Davis, Chicago, and Sterling Bunnell, San Francisco

Spontaneous Compression of the Medial Nerve at the Wrist George S Phalen, Cleveland
Discussion to be opened by Walter C. Graham Santa Barbara Calif , and Clarence A Luckey, Stockton, Calif

SECTION ON PATHOLOGY AND PHYSIOLOGY

MEETS IN AUDITORIUM OF MASONIC TEMPLE

OFFICERS OF SECTION

Chairman—Frank W Konzelmann, Atlantic City, N J
Vice Chairman—A S Giordano, South Bend, Ind
Secretary—Edwin F Hirsch, Chicago
Executive Committee—Alvin G Foord, Pasadena, Calif , George E Wakerlin, Chicago, Frank W Konzelmann, Atlantic City, N J

Wednesday, June 28—2 p m

Important Elements in the Initial Investigation of Sudden and Violent Deaths Richard Ford, Boston

Discussion to be opened by Lewis J Regan, Los Angeles, and Alvin G Foord, Pasadena, Calif

Clinical Physiology of Sodium and Potassium
William Hoffman, Chicago

Discussion to be opened by Helen E Martin, Pasadena, Calif, and A C Corcoran, Cleveland

Bacterial Transmutations Induced by Rhythmic Exposure to High Temperature
R R Spencer and M B Melroy, Bethesda, Md

Serum Electrolyte Changes in Acute Pancreatitis
Hugh A Edmondson and Ralph E Homann, Los Angeles

Discussion to be opened by A H Baggenstoss, Rochester, Minn

Thursday, June 29—2 p m

BUSINESS MEETING

ELECTION OF OFFICERS

Chairman's Address
Frank W Konzelmann, Atlantic City, N J

Pulmonary Vascular Bed Measured by Perfusion
Alvin J Cox and John S Cherredes San Francisco

Discussion to be opened by Harry J Corper, Denver, and Myron Prinzmetal, Beverly Hills, Calif

Effects of Urethane in Normal Animals
F K Mostofi and C D Larsen, Bethesda, Md

Discussion to be opened by Hugh Grady, Washington, D C, and Michael Shimkin, San Francisco

Thyroiditis Stuart Lindsay, San Francisco

Discussion to be opened by I F Rinehart, San Francisco, and C Alexander Hellwig, Wichita, Kan

Subclinical Histoplasmosis Gastrointestinal Histoplasmosis of Children Alan Raftery, Detroit

Discussion to be opened by F W Hartman, Detroit, and Robert J Parsons, Oakland, Calif

Observations on the Pathology of 3,000 Cancers of the Skin Charles Phillips, Temple, Texas

Friday, June 30—9 a m

JOINT MEETING WITH SECTION ON GASTRO-ENTEROLOGY AND PROCTOLOGY

Therapy of Amebic Dysentery
J A Bargen, Rochester, Minn

Acute and Chronic Pancreatitis A C Ivy, Chicago

Problems on Gastrointestinal Necrosis
Grant Laing, Chicago

Nutritional Deficiencies
Tom D Spies and Robert E Stone, Birmingham, Ala

Discussion to be opened by Dwight L Wilbur, San Francisco

SECTION ON PEDIATRICS

MEETS IN AUDITORIUM OF HIGH SCHOOL OF COMMERCE

OFFICERS OF SECTION

Chairman—Margaret Mary Nicholson, Washington, D C
Vice Chairman—Adolph G de Sanctis, New York
Secretary—Wyman C C Cole, Detroit
Executive Committee—Oscar Reiss,* Los Angeles, Woodruff L Crawford, Rockford, Ill , Margaret Mary Nicholson, Washington, D C

Wednesday, June 28—9 a m

Childhood Hypothyroidism Its Genesis
William A Reilly, Little Rock, Ark

Discussion to be opened by Hans Lisser, San Francisco, and A Wilmot Jacobson, Buffalo

Antihistamines in the Treatment of Allergic Diseases in Children Albert V Stoesser, Minneapolis

Discussion to be opened by Norman W Clein, Seattle, *and Morton Zall*, Los Angeles

Studies of Coxsackie Viruses
Edward A Beeman, Charles Armstrong and Roger M Cole, Bethesda, Md

Discussion to be opened by *Gordon Meiklejohn and* Edwin H Lennette, Berkeley, Calif

A Three Year Study of a Compulsory Rooming-In Program for Newborn Infants
Angus M McBryde, Durham, N C

Discussion to be opened by Leo H Bartemeier, Detroit, and F Crawford Bost, San Francisco

Chemotherapy in Childhood Tuberculosis
William Berenberg, Boston

Discussion to be opened by J A Myers, Minneapolis, and Harry F Dietrich, Beverly Hills, Calif

Chloramphenicol Therapy of Typhoid in Children
Joseph Greengard, Lawrence Breslow and Albert Milzer, Chicago

Discussion to be opened by Ralph V Platou, New Orleans, and Edward B Shaw, San Francisco

Accidents, Childhood's Greatest Threat, Are Preventable
Harry F Dietrich, Beverly Hills, Calif

Discussion to be opened by Vernon W Spickard, Seattle

Thursday, June 29—9 a m

BUSINESS MEETING

ELECTION OF OFFICERS

Chairman's Address Can the Pediatrician Influence Juvenile Delinquency?
Margaret Mary Nicholson Washington, D C

Effect of a Hormone of the Adrenal Cortex, Cortisone, 17-Hydroxy-11-Dehydrocorticosterone (Compound E) and of Pituitary Adrenocorticotropic Hormone (ACTH) on the Acute Phase of Rheumatic Fever
Arlie R Barnes, Rochester, Minn

Discussion to be opened by Stanley Gibson and Albert Dorfman, Chicago, and Edward W Boland, Los Angeles

Asphyxia Neonatorum A Preliminary Report on a New Method of Resuscitation
Allan P Bloxsom, Houston, Texas

Discussion to be opened by Arthur H Parmalee, Beverly Hills, Calif, and Robert A Johnston, Houston, Texas

Differential Diagnosis of Juvenile Rheumatoid Arthritis with Particular Reference to Rheumatic Fever
M P Schultz, E J. Rose and F R Leyva, Washington, D C

Discussion to be opened by Stanley Gibson, Chicago

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*Deceased

Sodium and Potassium Excretion in Renal Disease
Richard W Lippman, Los Angeles
Discussion to be opened by F S Smyth, San Francisco

Coccidioidomycosis in Children
Chester I Mead, Bakersfield, Calif
Discussion to be opened by Charles E Smith, San Francisco

PEDIATRIC ANNUAL BANQUET AT *6 30 P M*, HOTEL FAIRMONT

Friday, June 30—9 a m

JOINT MEETING WITH THE SECTION ON GENERAL PRACTICE

Intestinal Obstruction in the Newborn Infant
Oswald S Wyatt, Minneapolis
Discussion to be opened by Clifford D Benson, Detroit, and Clifford Sweet, Oakland Calif

Management of Acute Meningitis
J Harry Murphy, Omaha
Discussion to be opened by Hulda E Thelander, San Francisco

Diagnostic Drifts, Deceptions and Common Misses
M Pinson Neal, Columbia, Mo
Discussion to be opened by Oscar B Hunter, Washington D C, and J B Bilderback, Portland, Ore.

Congenital Megacolon or Hirschsprung's Disease Its Successful Management by Surgical or Medical Means in Nine Cases
Alexander H Bill Jr., Seattle
Discussion to be opened by Frederick C Moll, Seattle, and L E Harris, *Rochester, Minn*

Behavior Disturbances in Epileptic Children
Charles Bradley, Portland, Ore
Discussion to be opened by William W Belford, San Diego, Calif, and E D Anderson, Minneapolis

Treatment of Bronchial Allergy in Children
Ben F Feingold, Los Angeles
Discussion to be opened by Ralph Bowen, Houston, Texas, Albert H Rowe, Oakland, Calif, and Fred W Wittich, Minneapolis

SECTION ON PHYSICAL MEDICINE AND REHABILITATION

MEETS IN HALL 1 OF MASONIC TEMPLE

OFFICERS OF SESSION

Chairman—Frank H Krusen, Rochester, Minn
Vice Chairman—George Morris Piersol, Philadelphia
Secretary—Howard A Rusk, New York

Wednesday, June 28—2 p m

Practical Aids in the Rehabilitation of the Hemiplegic
Leonard J Yamshon, Los Angeles

Application of Muscle Physiology to Therapeutic Exercise
Donald J Erickson and Khalil G Wakim, Rochester, Minn

Comprehensive Physical Medicine for Degenerative Joint Disease Walter M Solomon, Cleveland

Place of Trihexyphenidyl and Mephenesin in Spastic Disorders
Ward H Schultz and Abraham Effron, New York

The Community Rehabilitation Center and the General Practitioner Arthur C Jones, Portland, Ore.

Medical Physics, Physical Medicine and Rehabilitation
Walter J Zeiter, Shelby G Gamble and Otto Glasser, Cleveland

A Study of the Adjustment of 500 Persons Over 16 Years of Age with Disabilities Resulting from Poliomyelitis George G Deaver, New York

Thursday, June 29—2 p m

ELECTION OF OFFICERS

Chairman's Address The Scope and Future of Physical Medicine and Rehabilitation
Frank H Krusen, Rochester, Minn

Physical Medicine and Rehabilitation in Medical Education Howard A Rusk, New York

Retraining Patients with Brain Damage
Joe R Brown, Rochester, Minn

Amputee Rehabilitation
Thomas J Canty, Mare Island, Vallejo, Calif

Intermittent Treatment of Poliomyelitis with Progressive Resistance Exercise Sedgwick Mead, St Louis

The Concept of "Acceptance" in Physical Rehabilitation Morris Grayson, New York

Friday, June 30—2 p m

SYMPOSIUM ON PHYSICAL MEDICINE AND REHABILITATION FOR PARAPLEGICS

Urologic Aspects of Rehabilitation in Spinal Cord Injuries Ernest Bors, Van Nuys, Calif

Neurosurgery in the Rehabilitation of Paraplegics
John D French, Van Nuys, Calif

Reconstructive Surgery in Spinal Cord Injuries
A Estin Comarr, Van Nuys, Calif

Physical Treatment and Rehabilitation of the Paraplegic Patient Harold Dinken, Denver

SECTION ON PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH

MEETS IN WHITE ROOM, MASONIC TEMPLE

OFFICERS OF SECTION

Chairman—C N Neupert, Madison, Wis
Vice Chairman—Rutherford T Johnstone, Los Angeles
Secretary—Jean S Felton, Oak Ridge, Tenn
Executive Committee—Robert H Riley, Baltimore, Oscar A Sander, Milwaukee, C N Neupert, Madison, Wis

Wednesday, June 28—2 p m

SYMPOSIUM ON THE AMERICAN WORKER HOW CAN INDUSTRIAL MEDICINE MEET HIS NEEDS?

Ralph Christopher Leggo, Crockett, Calif, Moderator

Viewpoint of the Personnel Administrator
Hiram S Hall, New York

Viewpoint of the Sociologist
Davis McEntire, Berkeley, Calif

Viewpoint of the Psychiatrist
Karl M Bowman, San Francisco

Viewpoint of the Physician in Industry
Henry H Kessler, West Orange, N J

Viewpoint of the Union Harry Read, Washington, D C

Viewpoint of Religion Richard Henry, Knoxville, Tenn
Discussion on symposium to be opened by J M Kimmich, Camden, N J, and Leon Lewis, Berkeley, Calif

SYMPOSIUM ON THE SPECIALIST LOOKS AT EVERY DAY MEDICAL CARE IN INDUSTRY

Chester L Samuelson, Lockport, N Y, Moderator

Dermatologist E A Levin, San Francisco
Internal Medicine
  Cardiology B M Overholt, Knoxville, Tenn
  Gastro-Enterology H S Van Ordstrand, Cleveland
Ophthalmologist W E Borley, San Francisco
Orthopedist H E Billig Jr, Los Angeles
Psychiatrist F O Due, Oakland, Calif

Discussion on symposium to be opened by M R Burnell, Detroit, L R Chandler, San Francisco, and A H Whittaker, Detroit

Thursday, June 29—2 p m

ELECTION OF OFFICERS

Exhaustion in the Young Business Executive Diagnosis and Treatment
Sidney A Portis, Irving H Zitman and Charles H Lawrence, Chicago
Discussion to be opened by W P Shepard, San Francisco

Statistics Can Tell the Story of Industrial Medicine
C C Hurd, New York
Discussion to be opened by J A Rafferty, Randolph Field, Texas

DEMONSTRATION SYMPOSIUM ON WHAT ARE THE DYNAMICS OF INDUSTRIAL HYGIENE

James H Sterner, Rochester, N Y, Moderator

Presentation of an Unidentified Occupational Case History R J Hasterlik, Chicago
Surveying the Plant D J Lauer, Cincinnati
Studying the Environment F E Adley, Richland, Wash
Chemical Analysis F R. Holden, San Francisco
Maximum Allowable Concentrations
H H Hudson, Nashville, Tenn
Control
  Medical R A Kehoe, Cincinnati
  Environmental B F Postman, New York

Discussion on symposium to be opened by R T Johnstone, Los Angeles, and A J Lanza, New York

Friday, June 30—2 p m

Chairman's Address Does the Health Officer Now Have Status? C N Neupert, Madison, Wis

SYMPOSIUM ON SCREENING TECHNICS FOR THE DISCOVERY OF CHRONIC DISEASE IN THE ADULT POPULATION

Henrietta Herbolsheimer, Springfield, Ill, Moderator

Dwight M Bissell, San Jose, Calif
Lester Breslow, Berkeley, Calif
C Kelly Canelo, San Jose, Calif
Vlado A Getting, Boston

Discussion on symposium to be opened by L E Burney, Indianapolis, and W E Halverson, San Francisco

Incidence of Trichinella Infections in San Francisco, 1950 R R Beard, San Francisco
Discussion to be opened by Frank R Queen, Portland, Ore

SYMPOSIUM ON Q FEVER

Malcolm H Merrill, San Francisco, Moderator

R J Huebner and Joseph Bell, Bethesda, Md
E H Lennette, Berkeley, Calif
H C Stoenner, Hamilton, Mont

Discussion on symposium to be opened by M Dorothy Beck and Hartwell Welsh, Berkeley, Calif

SECTION ON RADIOLOGY

MEETS IN HALL 2 OF MASONIC TEMPLE

OFFICERS OF SECTION

Chairman—U V Portmann, Cleveland
Vice Chairman—J C Dickinson, Tampa, Fla.
Secretary—Paul C Hodges, Chicago
Executive Committee—W Walter Wasson, Denver, Harry M Weber, Rochester, Minn, U V Portmann, Cleveland

Wednesday, June 28—9 a m

Chairman's Address Cancer of the Breast, Classification of Cases and Criteria of Incurability
U V Portmann, Cleveland.

Nasopharyngeal Irradiation The Relative Merits of Roentgen and Radium Therapy for Benign Conditions
L H Garland, H A Hill, M E Mottram and M A Sisson, San Francisco

The Separate Neural Arch
George G Rowe and Maurice B Roche, St. Louis

Accessory Sacroiliac Articulations
Lee A Hadley, Syracuse, N Y

Roentgen Examination of the Inferior Vena Cava by Contrast Methods
Bernard J O'Loughlin, Minneapolis

Pyelography as an Aid in Classification of Carcinoma of the Cervix
Rieva Rosh and Philip Strax, New York

Thursday, June 29—9 a m

BUSINESS SESSION

ELECTION OF OFFICERS

Artificial Radioactivity in the Therapy of Diseases of the Hematopoietic System with Comments on Radioactive Colloids
John G Gofman and John H Lawrence, Berkeley, Calif

Effects of Radiation on Bacteria
R Lowry Dobson and Robert Weatherwax, Berkeley, Calif

Effects of Radiation on Iron Metabolism and Red Cell Formation.
Thomas Hennessy, W F Bethard and Rex L Huff, Berkeley, Calif

Nucleic Acid Metabolism and Metabolism of C^{14} Labeled Compounds in Normal and Neoplastic Animals
H B Jones and Lola Kelly, Berkeley, Calif

Present Status of Radioactive Iodine in Treatment of Thyroid Diseases
John Bertrand and James Robertson, Berkeley, Calif

Radiologic Use of Fast Proton, Deuteron and Alpha Particle Beams
C A Tobias and H O Anger, Berkeley, Calif

Friday, June 30—9 a m

Roentgenologic Examination of the Colon Using Drainage and Negative Pressure, with Special Reference to the Early Diagnosis of Neoplasms
F E Templeton and E A Addington, Seattle.

Pneumoperitoneum in the Study of Pelvic Structures
J R. Maxfield Jr, Dallas, Texas

Occurrence of Bronchogenic Carcinoma in Congenital Cystic Emphysema of the Lungs Review of the Literature and Report of Ten Cases
Ephraim Korol, Downey, Ill

Cerebral Cysticercosis
Guillermo Santin, Mexico D F, Mexico

Hypertrophic Pyloric Stenosis J E Miller, Dallas, Texas

Inflation of the Stomach with Double Contrast A Roentgen Study
Francis F Ruzicka and Leo G Rigler, Minneapolis

SECTION ON SURGERY, GENERAL AND ABDOMINAL

MEETS IN AUDITORIUM OF VETERANS WAR MEMORIAL

OFFICERS OF SECTION

Chairman—Michael E DeBakey, Houston, Texas
Vice Chairman—R Glen Spurling, Louisville, Ky
Secretary—I Ridgeway Trimble, Baltimore
Executive Committee—B Noland Carter, Cincinnati William F MacFee, New York, Michael E De Bakey, Houston, Texas

Wednesday, June 28—9 a m

High Intensity, Radiant Energy (Flash) Burns
Herman E Pearse and Harry D Kingsley, Rochester, N Y
Discussion to be opened by Everett I Evans, Richmond, Va , and Leon Goldman, San Francisco

Blood Volume in Health and Disease A Neglected but Important Surgical Problem
Philip B Price Salt Lake City
Discussion to be opened by Norman E Freeman, San Francisco and John H Clark, Salt Lake City

Conservative Management of Acute Cholecystitis
Robert W Buxton and Frederick A Coller, Ann Arbor, Mich.
Discussion to be opened by G Lawrence Chaffin, Los Angeles, and Allen M Boyden, Portland, Ore

Construction of a Substitute Bladder and Urethra.
R K. Gilchrist J W Merricks, Howard Hamlin and I T Rieger, Chicago
Discussion to be opened by Frank Hinman, San Francisco, Eugene Bricker, St. Louis, and William Wallace Scott, Baltimore.

Portacaval Shunt for Portal Hypertension Follow-Up Results in Cases of Cirrhosis of the Liver
Arthur H. Blakemore, New York
Discussion to be opened by Hamilton Southworth, New York, and C Stuart Welch Boston

Current Methods of Diagnosis of Pheochromocytoma.
Evan Calkins Baltimore
Discussion to be opened by Keith S Grimson, Durham, N C, and Grace Roth, Rochester, Minn

Thursday, June 29—9 a m

ELECTION OF OFFICERS

Chairman's Address Evaluation of Sympathectomy in Arteriosclerotic Peripheral Vascular Disease
Michael E DeBakey, Houston, Texas

Anatomic Basis for More Complete Surgical Sympathetic Denervation.
Albert Kuntz and William F Alexander, St Louis
Discussion to be opened by A W Adson, Rochester, Minn and Paul G Flothow, Seattle

Encephalographically Controlled Anesthesia in Abdominal Surgery
Charles W Mayo and Albert Faulconer Jr., Rochester, Minn
Discussion to be opened by William L Estes Jr., Bethlehem Pa.

Appraisal of Vagotomy for Peptic Ulcer After Seven Years
Lester R Dragstedt, Edward R Woodward Edward H Storer, Harry A Oberhelman Jr, and Curtis A Smith, Chicago
Discussion to be opened by I Ridgeway Trimble, Baltimore and David H Sprong Jr., Santa Monica, Calif

Present Status of the Surgical Treatment of Peptic Ulcer
Frank Glenn New York
Discussion to be opened by H Glenn Bell San Francisco, and I S Ravdin, Philadelphia

Friday, June 30—9 a m

Acute Abdominal Conditions of Infancy and Childhood.
William J Norris and Donald F Brayton, Los Angeles
Discussion to be opened by H Glenn Bell and Loren R Chandler, San Francisco

Chloramphenicol and Aureomycin in Surgical Infections
W A Altemeier, Cincinnati
Discussion to be opened by Edwin J Pulaski, San Antonio, Texas, and Horace J McCorkle, Los Angeles

Malignancy in Adenomas of the Thyroid
Frank H Lahey and Hugh F Hare, Boston
Discussion to be opened by Robertson Ward and Frederick L Reichert, San Francisco

Carcinoma of the Esophagus
John H Gibbon Jr., and Frank F Allbritten Jr., Philadelphia
Discussion to be opened by Lyman A Brewer III and Carleton Mathewson Jr. San Francisco

The Liver as a Factor in Experimental Renal Hypertension Loyal Davis and Carlos A Tanturi, Chicago
Discussion to be opened by Howard C Naffziger, San Francisco, and Harry Goldblatt, Los Angeles

Tumors of the Parotid Gland.
Donald E Ross and Claude R Swain, Los Angeles
Discussion to be opened by Clarence E. Nelson and Samuel L Perzik, Los Angeles

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SECTION ON UROLOGY

MEETS IN BANQUET ROOM OF CALIFORNIA HALL

OFFICERS OF SECTION

Chairman—Edward N Cook, Rochester, Minn
Vice Chairman—Hugh J Jewett, Baltimore
Secretary—Earl E Ewert, Boston
Executive Committee—Reed M Nesbit, Ann Arbor, Mich , Hamilton W McKay, Charlotte, N C , Edward N Cook, Rochester, Minn

Wednesday, June 28—2 p m

Common Congenital Anomalies of the Urinary Tract
Edgar Burns New Orleans

Advisability of Surgical Reversal of Sex in Females Pseudohermaphroditism
Frank Hinman Jr , San Francisco
Discussion on papers of Drs Burns and Hinman to be opened by Frank Hinman, San Francisco, and Jay J Crane Los Angeles

Torsion of the Spermatic Cord in the Newborn Two Instances of Spermatic Cord Tension in the Newborn Are Reported Carl A Biorn, Palo Alto, Calif

Indication and Results of Resection of the Vesical Neck in Children.
T Leon Howard and Henry A Buchtel, Denver
Discussion to be opened by Carl E Burkland Sacramento, Calif , and Miley B Wesson, San Francisco

Injury to the Ureter During Open Surgery Diagnosis, Treatment and Results
Ralph B Mullenix and Robert J Prentiss, San Diego, Calif

Injury of the Ureter (Due to Surgery, Interureteral Instrumentation and External Violence) Report of 41 Cases Carl F Rusche, Hollywood Calif

Bilateral Intramural Strictures of the Ureters After Transurethral Resection of the Prostate
Vincent J O Conor, Chicago
Discussion to be opened by A J Scholl, Los Angeles, and G J Thompson, Rochester, Minn

Thursday, June 29—2 p m

ELECTION OF OFFICERS

Chairman's Address Misconceptions in Urology
Edward N Cook, Rochester, Minn

Retropubic Prostatectomy Report of 100 Consecutive Cases
John R Hand, Portland, Ore

Significance of Serum Acid Phosphatase Determinations in the Diagnosis and Prognosis of Prostatic Cancer
Reed M Nesbit, Ann Arbor, Mich

Discussion to be opened by Elmer Belt, Los Angeles, Thomas R Montgomery, Portland, Ore, and Thomas E Gibson, San Francisco

Excretory Urography A Clinical Study
George H Ewell and Harold W Bruskewitz, Madison, Wis

Evaluation of the Surgical Kidney Employing Translumbar Aortagraphy
A Keller Doss, Fort Worth, Texas, and Humberto Quirarte, Mexico, D F, Mexico

Discussion to be opened by Francis H Redewill, San Francisco, and Harold A O'Brien, Dallas, Texas

Early Recognition and Treatment of Venous Thrombosis in Urologic Patients
Ormond S Culp and James Barron, Detroit

Use of Intravenous Alcohol in Surgical Patients
J Kenneth Sokol and Mary Karp, Chicago

Discussion to be opened by Urban H Eversole, Boston, and Thomas L Schulte, San Francisco

Friday, June 30— 2 p m

Semen Studies and Infertility
Edward T Tyler, Los Angeles

Prostatic Massage Indications and Contraindications
Rex E Van Duzen, Dallas, Texas

Discussion on papers of Drs Tyler and Van Duzen to be opened by Lewis Michelson, San Francisco, M James Whitelaw, Phoenix, Ariz, and Miles Griffin, Berkeley, Calif

Correction of Vesical Obstruction Due to Hypertrophy of the Interureteric Ridge in the Male
Oswald Swinney Lowsley, New York.

Discussion to be opened by John D French and Donald Malcolm, Van Nuys, Calif

Nephrocalcinosis
W J Engel, Cleveland

Treatment of Patients with Carcinoma of the Bladder
Rubin H Flocks and Edward E. Wieben, Iowa City

Hematuria
James C Negley, Glendale, Calif

Discussion on papers of Dr Engel and Drs Flocks and Wieben to be opened by Ben D Massey, Pasadena, Calif, Roger W Barnes, Los Angeles, and Thomas A Morrissey, New York

THE SCIENTIFIC EXHIBIT

The Scientific Exhibit will be located in the Civic Auditorium in Polk Hall and in corridors on the first and second floors Motion pictures will be shown in the nearby Masonic Hall

The nineteen sections of the Scientific Assembly have arranged small groups of exhibits dealing with the respective specialties of medicine Emphasis is placed, however, on the interest of the physician in general practice rather than that of the specialists in the various groups Among other features of interest will be the special exhibit on fractures, blood bank demonstrations, an exhibit symposium on tropical medicine and clinical conferences on diabetes

Admission to the Scientific Exhibit will be limited to persons wearing the Fellowship badge or other official badge of the Convention The public will not be admitted to the Scientific Exhibit

Thomas G Hull, Director
SCIENTIFIC EXHIBIT

SPECIAL FEATURES

The Committee on Scientific Exhibit has arranged for the following special features this year

Special Exhibit on Fractures

The Special Exhibit on Fractures is presented again this year under the auspices of the following committee

Kellogg Speed, Chicago, chairman
Frederick A Jostes, St Louis
Gordon M Morrison, Boston

The local representative of the Committee is Carleton Mathewson Jr, San Francisco

The purpose of the exhibit is to stress elementary points in treatment based on the pathology of each type of fracture for instruction of the physician in general practice

A pamphlet has been prepared for distribution, giving the essential features of the exhibit

Continuous demonstrations will be conducted each morning and afternoon throughout the week The subjects covered this year are as follows

Emergency Treatment of Fractures of the Lower Extremity
Fracture of the Shaft of the Femur
Supracondylar Fracture of the Humerus
Fracture of the Lower End of the Radius
Fractures of the Ankle
Compression Fracture of the Spine

The following demonstrators will assist the Committee in the presentation of the exhibit

Vernon C Abbott, Pontiac, Mich.
Ronald W Adams, Boston
Stewart Armstrong, Brookline, Mass
Leonard Barnard Oakland Calif
John R Black, Los Angeles
Donald R Brasie, Flint, Mich
Ernest M Burgess, Seattle
John J Callahan, Seattle
C Elmer Carlson, Portland
Ralph G Carothers Cincinnati
Comdr Chalmers R Carr, Oakland, Calif
William Arthur Clark, Pasadena, Calif
Reed S Clegg Salt Lake City
Edward J Coughlin Jr, Williamstown Mass
Francis J Cox, San Francisco
Lewis N Cozen, Los Angeles
Carl B Davis Jr, Chicago
Joe B Davis Portland, Ore
Hardie B Elliott Jr, Flint, Mich.
Harry Emmel, Seattle
Jackson Flanders, Redwood City, Calif
Robert Florence, Tacoma, Wash
Comdr L F Friend, Oakland, Calif
Charles W Gilfillan, Los Angeles
Gerald G Gill, Oakland, Calif
Wallace W Greene, San Francisco
Stanley S Haft, Los Angeles
Paul H Harmon, Oakland, Calif
W F Holcomb, Oakland, Calif
Melvin T Hurley, Richmond, Calif
Fred W Ilfeld, Los Angeles
Comdr R B Johnson, Oakland Calif
Peter Joseph, San Francisco
John W Larrabee Hartford, Conn
G B Lewis, Oakland Calif
J Vernon Luck, Los Angeles
Theodore A Lynn, Los Angeles
Robert Mazet West Los Angeles
John F Merritt Santa Barbara, Calif
John J Milroy Waukegan, Ill
William R Molony Jr, Los Angeles
Gordon M Morrison, San Mateo, Calif
Frank G Murphy, Chicago
Alonzo J Neufeld, Los Angeles
Homer C Pheasant, Los Angeles
Edmund T Rumble Jr, Callicoon N Y
Walter Scott, Los Angeles
A B Sirbu, San Francisco
Frank B Smith, Portland
Comdr H. A Streit, Oakland Calif
T D Thompson, Spokane, Wash.
Herbert W Virgin Jr, Miami, Fla
J Huber Wagner, Pittsburgh
Raymond Wallerius, Sacramento, Calif
Robert Watkins San Francisco
Philip R Westdahl, San Francisco
J C Woodward, Vancouver, Wash

A Community Blood Bank

The Blood Bank Commission of the California Medical Association presents a model nonprofit community blood bank The Chairman of the Commission is John R Upton, San Francisco

Modern methods of history taking, blood typing, blood procurement and laboratory technics will be demonstrated, together with various phases of mobile blood banking

The exhibit will include complete equipment for blood bank purposes with a physician, secretary, technician and canteen worker in constant attendance

Among the personnel on duty at the booth will be the following

Dewitt Burnham San Francisco
Donald Harrington Stockton Calif
Clayton Lyon, San Francisco
Malcolm Merrill San Francisco
C D Newel Fresno Calif
Gerald Ridge Ventura, Calif
James Rinehart San Francisco
Dudley V Saeltzer Jr Sacramento
David Singman Berkeley Calif
Owen Thomas Santa Rosa Calif

Exhibit Symposium on Tropical Medicine

The American Society for Tropical Medicine, with the cooperation of the American Foundation for Tropical Medicine, is presenting an exhibit symposium to show the many advances that have occurred in the control of tropical diseases since the close of World War II, especially as they affect the Pacific Area

The following Committee is in charge of the symposium

John F Kessel, Los Angeles, chairman
Harry Most, New York
Edwin H Lennette, Berkeley

Filariasis in Pacific Areas—Research and Control

John F Kessel, University of Southern California, Los Angeles

The exhibit presents a map of the Pacific region showing the distribution of filariasis in the Pacific, and the centers where special research and control on this subject are in progress, especially the Naval Medical Research Institute in American Samoa, the work of the University of Southern California in cooperation with the French Colonial Medical Service in Tahiti and the work of the British Colonial Medical Service in Fiji Results of work in progress from these centers will be featured in the form of photographs, posters, charts, booklets, transparencies and drawings

Schistosomiasis Japonica

Ruell A Sloan, Army Forces Institute of Pathology, Washington, D C , Willard Wright, National Institutes of Health, Bethesda, Md, and Ernest Carroll Faust, Tulane University School of Medicine, New Orleans

The most recent findings and current evaluations of this important tropical disease of the Pacific are presented by the various medical illustrative technics

Mite Typhus

Joseph E Smadel, Army Medical Department Research and Graduate School, Army Medical Center, Washington, D C

The exhibit shows the vector mites, the quantitative and qualitative relationship between the vector and nonvector mites, the incidence of infection in exposed volunteers, the cycle of infection in the primary jungle and in scrub terrain, and data on the chemotherapy and chemoprophylaxis of scrub typhus

Plague

Vernon B Link, Western Communicable Disease Center Laboratory, Public Health Service, San Francisco

Maps, photographs, tables and charts show the importance of plague in the Pacific Area The antiplague activities of the United States Public Health Service will be summarized and emphasis placed on diagnosis, treatment and prevention of plague in the United States of America

The Viral Encephalitides

Malcolm H Merrill, Arthur C Hollister, W Allen Longshore Jr, Benjamin H Dean and Arve H Dahl, California State Department of Public Health and University of California, San Francisco and Berkeley

The exhibit consists of five panels showing the pertinent facts and present knowledge concerning the arthropod borne viral encephalitides including their importance diagnosis and treatment, distribution, infection cycle or mode of spread, and control Charts and posters, and photomurals covering up to-date methods of diagnosis both clinical and laboratory, the problem of differential diagnosis, pathology and treatment will be shown in panels 1 and 2 Panel 3 will illustrate the known distribution of this group of viral diseases by means of a lighted map The currently accepted infection cycle for one of the major viral encephalitides will appear on panel 4, while panel 5 will be devoted to individual and community preventive measures

In addition to the exhibit symposium, the following exhibits dealing with various phases of tropical diseases will be found in other parts of the Hall

Concepts of Coccidioidal Infections

Robert Cohen, Myrnie Gifford and Charles E Smith, Kern General Hospital, Kern County Department of Public Health and University of California, Bakersfield and Berkeley

Amebiasis

E W Dennis, D A Berberian and John W Hart, Sterling-Winthrop Research Institute, Rensselaer, N Y

Q Fever

Robert J Huebner, Edward Beeman and Lauri Luoto, National Institutes of Health, Bethesda, Md , James H Steele, Communicable Disease Center, Atlanta, Ga , and William L Jellison, Hamilton, Mont.

Hansen's Disease (Leprosy)—Orthopedic Manifestations and Treatment

J Warren White, Lieut Jack W Millar, USN, and Richard S Dodge, Honolulu, Hawaii

Clinical Conferences on Diabetes

A series of lectures and clinics dealing with diabetes and its complications will be conducted in Space 430 from Monday until Thursday under direction of a committee composed of members of the George F Baker Clinic, New England Deaconess Hospital and the American Diabetes Association and the staff members of Diabetes Clinics in San Francisco under the chairmanship of Howard F Root The newer insulins and their use in treatment, the use of diet, treatment of complications such as diabetic coma, vascular complications, surgery, pregnancy and the ocular complications of diabetes will be presented

The program follows

Monday, June 26

12 00 noon	**Diabetes Detection**	Howard F Root, Boston
12 30 p m	**Control of Diabetes Victory Medal Winners**	G B Robson, San Francisco
1 00 p m	**Planning a Teaching Program for the Patient**	Blair Holcomb, Portland, Ore.
1 30 p m	**Treatment of the Brittle Diabetic**	Henry B Mulholland, Charlottesville, Va
2 00 p m	**Newer Surgical Procedures in Diabetes**	Leland S McKittrick, Boston
2 30 p m	**Eye Complications**	Jerome W Bettman, San Francisco
3 00 p m	**Diet and Insulin**	Alexander Marble, Boston
3 30 p m	**Treatment of Intercapillary Glomerulosclerosis and Renal Complications**	Edward C Persike, San Francisco
4 00 p m	**Pregnancy and Diabetes**	Lester J Palmer, Seattle

Tuesday, June 27

10 00 a m	**Diet and the Need for Control**	Frank N Allan, Boston
10 30 a. m	**Treatment of Hypoglycemia, Adenomas of the Islands of Langerhans**	Alexander Marble, Boston
11 00 a m	**Gastrointestinal and Hepatic Complications**	Garnett Cheney, San Francisco
11 30 a m	**Intercapillary Glomerulosclerosis**	Randall G Sprague, Rochester, Minn
12 00 noon	**Treatment of Coma**	Howard F Root, Boston
12 30 p m	**Need for Control of Diabetes**	Henry T Ricketts, Chicago

1 00 p m **Recent Advances in Physiology of Diabetes**
ALEXANDER MARBLE, Boston

1 30 p m **Cardiovascular Complications**
EDWARD L. BORTZ, Philadelphia

2 00 p m **Retinitis in the Course of Diabetes**
ARTHUR JAMPOLSKY, San Francisco

2 30 p m **Newer Methods of Treatment of Severe Neuropathy**
HOWARD F ROOT, Boston

3 00 p m **Surgery and Diabetes**
ROY B COHN, San Francisco

Wednesday, June 28

10 00 a m **Thyroid, Pituitary and Adrenal Cortex**
ARTHUR R COLWELL, Evanston, Ill

10 30 a m **The Feet of the Diabetic**
NELSON HOWARD, San Francisco

11 00 a m **Treatment of Obesity and Prevention of Diabetes**
HAROLD I HARVEY, Berkeley, Calif

11 30 a m **Treatment of Diabetic Foot Lesions**
FREDERICK W WILLIAMS, New York

12 00 noon **Diabetic Control in Youthful Cases**
HOWARD F ROOT, Boston

12 30 p m **Potassium in Diabetic Coma**
JEROME W CONN, Ann Arbor, Mich

1 00 p m **NPH-50 Insulin and Insulin Mixtures**
ALEXANDER MARBLE, Boston

1 30 p m **Insulin Resistance**
H C SHEPARDSON, San Francisco

2 00 p m **Incidence of Diabetic Mothers**
JOSEPH P KRISS, San Francisco

2 30 p m **Public Health Aspects**
H L C WILKERSON, Boston

3 00 p m **Endocrine Relations in Diabetes**
FRANCIS GREENSPAN, San Francisco

Thursday, June 29

10 00 a m **Treatment of Diabetic Coma**
ALEXANDER MARBLE, Boston

10 30 a m **Cardiac Complications**
MARLOW HARRISON, San Francisco

11 00 a m **Prevention of Gangrene**
WILLIAM H OLMSTED, St Louis

11 30 a m **Film Demonstrations of Severe Infections**
DEWITT BURNHAM, San Francisco

12 00 noon **Insulin Mixtures**
FRANKLIN B PECK, Indianapolis

12 30 p m **Changing Statistics**
H H MARKS, New York

1 00 p m **Retinitis and the Prognosis**
DAVID MCKAY, San Francisco

1 30 p m **Case Demonstration.**
MYRON ARRICK, San Francisco

2 00 p m **Renal Complications of Diabetes and Prevention**
HOWARD F ROOT, Boston

2 30 p m **Unilateral Renal Glycosuria and Nephrectomy**
CLAUDE P CALLAWAY, San Francisco

3 00 p m **Treatment of Complications in Skin and Nervous System**
HERBERT N JACOBS, San Francisco

SECTION EXHIBITS

Each of the nineteen sections of the *Scientific Assembly* has arranged a group of exhibits dealing with the *various branches* of medicine

Section on Internal Medicine

The representative to the Scientific Exhibit from the Section on Internal Medicine is Wesley W Spink, Minneapolis

Artane®—Pharmacologic and Clinical Studies

RAYMOND W CUNNINGHAM, B K HARNED, JOHN J DENTON and GUY W CLARK, *Lederle Laboratories*, Pearl River, N Y

The exhibit consists of a series of charts and graphs describing the pharmacodynamic activity of artane® (trihexyphenidyl) and several closely related compounds together with the effects of multiple doses in a large series of animals The pharmacology of six related compounds was investigated extensively in the evaluation of Artane preparatory to clinical trial Summaries of some of the clinical results with trihexyphenidyl will be included

Liver Biopsy in Chronic Hepatic Disease

VICTOR M SBOROV, and LIEUT DONALD A SUTHERLAND (MC), Army Hepatic and Metabolic Center, Valley Forge General Hospital, Phoenixville, Pa

Liver biopsy is presented as a useful adjunct in the diagnosis and prognosis of chronic liver disease The exhibit shows what correlation can be expected between the morphologic changes in the liver and the functional changes as measured in the laboratory The technic, indications, contraindications, and complications of the liver biopsy in a large series of cases are also shown

Rheumatoid Arthritis

DONALD F HILL, W PAUL HOLBROOK, LEO J KENT and C A L STEPHENS JR, Southwestern Clinic and Research Institute, Inc, Tucson, Ariz

The exhibit presents a basic outline of treatment that continues to be essential for all patients A method for correction of knee flexion contraction is shown with examples Clinical effects and results with the experimental use of cortisone and pituitary adrenocorticotropic hormone are given, together with clinical laboratory results and studies in amino acid excretion

Concepts of Coccidioidal Infections

ROBERT COHEN, MYRNIE GIFFORD and CHARLES E SMITH, Kern General Hospital, Kern County Department of Public Health and University of California, Bakersfield and Berkeley, Calif

The etiologic agent of coccidioidomycosis, cultures, skin test and serology tests with *graphs of results of serology tests are* shown Public health *graphs of Kern County (endemic area)* of the disseminated cases and primary and mortality figures are presented, together with pictures of patients and experimental results of *2 years'* study of *actidione (streptomyces griseus irradiated)* on *disseminated cases*

Zoetropes of Cardiac Action Currents

FREDERIC B FAUST, Payne-Shotwell Foundation, Littlefield, Texas

The exhibit presents an instrument through which pictures appear to be animated One zoetrope demonstrates the normal action current set up by the repolarization wave during systole, followed by repolarization in the heart as a whole and in one ventricle, as an enlargement The central portion depicts the correlation of intra-auricular, intraventricular and aortic pressure activity Few physiologic processes have been more accurately described than these mechanical and electrical events A second zoetrope demonstrates the action current when injured muscle is stimulated resulting in a positive shift of the isoelectric line during the depolarized state of this muscle, in the heart as a whole and in one ventricle The third zoetrope demonstrates bundle branch block (uncommon type) The impulse halts in the *right bundle* of His The impulse continues in the left ventricle and then sweeps clockwise through the epicardium and purkinje fibres, then through the *right* ventricle *giving* rise to the lengthened and deformed QRS The upper animation is that of auricular flutters The *green bands of the* atria indicate the circular path of auricular depolarization which causes the "saw-tooth" effect on the electrocardiogram The circular movement of Lewis is still the *most popular* physiologic explanation

Universal Serologic Reaction in Health and Disease

REUBEN L KAHN, University of Michigan, University Hospital, Ann Arbor, Mich

The exhibit consists of graphs which illustrate characteristic serologic patterns of the universal reaction with lipid antigen in health, in experimental immunization and in various diseases The graphs show that serologic patterns, constant in health, undergo changes in (1) syphilis, (2) yaws, (3) tuberculosis, (4) leprosy and (5) malaria and in (6) "false positive" reactors and (7) animals inoculated with various substances The serologic patterns illustrated indicate that the universal reaction offers a new tool for serologic investigations of human beings and animals in health and in different diseases

Congenital Heart Disease—Study, Diagnosis and Surgical Treatment

CHARLES D MARPLE, University of California School of Medicine San Francisco

The various means by which the congenital heart diseases may be studied and diagnosed are described, indicating those methods which are available to the average practicing physician and those specialized methods which require the facilities of a medical center A classification of the various types of congenital heart lesions is presented along with an outline of symptoms and signs which may suggest the presence of these lesions Specialized methods of study such as electrocardiography, electrokymography roentgenography, including angiography, and cardiac catheterization are described as research and diagnostic tools There is a brief description of the surgical treatment of congenital heart lesions

Hypertension in the Young

J Q GRIFFITH JR., Philadelphia, and E E. MANSER, Haddonfield, N J

More than 100 subjects with hypertension but without renal failure have been studied, including both sexes, all under 20 years of age, and followed for varying periods up to 10 years A group can be differentiated comprising a new syndrome, characterized by (1) male sex, (2) height of 5 feet, 10 inches or more, (3) substance in serum antidiuretic by rat test (posterior lobe pituitary hormone), (4) disappearance of antidiuretic substance followed by return of blood pressure to normal in 6 to 18 months, usually without treatment, and (5) absence of any true morbidity or mortality

Cationic Exchange Polymers in Congestive Heart Failure

I J GREENBLATT, T D COHN, M JACOBI, E W LIPSCHUTZ and I S FRIEDMAN, Beth-El Hospital and Jewish Hospital of Brooklyn, Brooklyn

Cationic ammonium and hydrogen exchangers have been fed to subjects in moderate states of congestive failure. These unabsorbed polymers pick up most naturally occurring cations and substitute an ammonium radicle or hydrogen radicle for the sodium, potassium, calcium, or magnesium that may be present in the environs of the medium Studies on electrolyte distribution in the blood, urine and feces show a definite trend in increasing the fecal sodium, potassium, calcium and magnesium. The urine output is increased in many instances The diet is essentially a 4 to 6 Gm per day sodium chloride intake In certain cases a large number of casts appear in the urine following therapy The dosage is regulated to contain no less than 50 Gm of the polymer per day

Psychosomatic Genesis of Coronary Artery Disease

DON CARLOS PEETE, University of Kansas School of Medicine, Kansas City, Kan.

This exhibit emphasizes the historical background of the concept of coronary artery disease as being a psychosomatic illness References are made to many sources including the Bible indicating that this type of heart disease has long been recognized. The therapeutic value of some biblical teachings is emphasized. Complete studies of a series of patients with laboratory records are included in the exhibit, showing the diagnosis and treatment

Neurovascular Reflex Dystrophy—Causalgic States

F STANLEY MOREST, University of Kansas School of Medicine, Kansas City, Mo

Neurovascular reflex dystrophy does not constitute disease, per se, but represents end results of various etiologic factors produced by internal or external tissue trauma The mechanism responsible for the development of neurovascular reflexes is probably as follows (1) sites of origin of stimuli are frequently in injured areas of extremities brought about through external trauma or by disease processes in tissues The actual storage of stimuli in a "center' composed of this network of accessory neurones in the spinal cord segments and forming an 'internuncial pool" which can be discharged immediately, or held for release hours or days later, is of course theoretical Nevertheless it is for the present at least probably the best hypothesis available and certain clinical technics based on this concept are of therapeutic value Charts clinical photographs and diagrams show treatment for causalgia, Sudeck's atrophy, post-traumatic arteriospasm, ainhum syndrome, Palmer fascial contractures and posthemaplegic hand syndrome and postinfarctional shoulder

Sublingual Administration of Steroidal Hormones

H LISSER, R. B AIRD, M S ARRICK, L L BENNETT, L S CRAIG, R F ESCAMILLA, M B GOLDBERG, G S GORDAN and M J NYDA, University of California School of Medicine, San Francisco

Photographs, charts and graphs present objective evidence of the efficacy of sublingual or buccal administration of various steroidal hormones testosterone compounds in male hypogonadism or for the production of increases in height and weight, desoxycorticosterone acetate in Addison's disease and convulsive disorders and progesterone for effects on basal body temperature and the endometrium Stress is placed on ease of administration and control, economy and convenience as well as efficacy of this type of therapy

Clinical Evaluation of Commonly Used Anti-Thyroid Compounds

THOMAS H MCGAVACK, JACQUELINE CHEVALLEY, I J DREKTER and SIDNEY STERN, New York Medical College and Metropolitan Hospital Research Unit, Welfare Island, N Y

Their affects will be recorded in relation to alterations in symptoms and signs, pulse rate, blood pressure, weight, basal metabolic rate, serum cholesterol levels and creatine excretion Whenever possible, the histologic picture found at operation will be compared with that obtained through pretreatment biopsy The incidence, nature and severity of toxic reactions will be tabulated from the above indexes of therapeutic effectiveness and toxicity The drugs will be rated according to their usefulness in relation to clinical control of thyrotoxicosis, which stands somewhat in the following order (1) 1 methyl-2-mercapto-imidazole, (2) 1 ethyl-2-mercapto-imidazole, (3) 2-mercapto-imidazole, (4) methylthiouracil, (5) propylthiouracil and (6) thiouracil In establishing a final numerical index, thiouracil, while now no longer clinically available, will be used as a standard of reference

Behavior of Electrolytes in Diabetes Mellitus

JONAS WEISSBERG, A M SHEARMAN, ALEXANDER HEISLER and GEORGE R SCISM, New York Medical College and Metropolitan Hospital Research Unit, Welfare Island, N Y

This exhibit summarizes studies of the behavior of electrolytes in 16 diabetic subjects before and after the institution of adequate therapy with fluids, minerals and insulin Eight of these patients were admitted to the hospital in severe diabetic acidosis, the remaining 8 were severely diabetic subjects in whom ketosis developed after a reduction or discontinuance of insulin therapy At intervals of one to four hours, specimens of blood and urine were analyzed for their content of potassium, sodium, chloride, phosphorus and total nitrogen, and in addition, the blood was analyzed for its content of sugar and for carbon dioxide combining power The movement of potassium under physiologic conditions is compared with its behavior in various phases of controlled and uncontrolled diabetes

Progress in the Control of Diabetes

HOWARD F ROOT, ELLIOTT P JOSLIN PRISCILLA WHITE, ALEXANDER MARBLE, ALLEN P JOSLIN, George F Baker Clinic, New England Deaconess Hospital, Boston, and DONALD B ARMSTRONG and HERBERT H MARKS, Metropolitan Life Insurance Company, New York.

Charts presenting clinical and statistical data on (1) treatment of diabetes and its major complications, juvenile diabetes and diabetic pregnancies, with emphasis on careful dietary and insulin treatment in the control of diabetes, (2) results of treatment of the disease based on follow-up data of diabetic patients treated at the George F Baker Clinic, of the New England Deaconess Hospital since 1897, (3) life tables for diabetics showing the progressive increase in expectation of life, comparisons with the general population and factors influencing the longevity of diabetics (4) trends in the causes of death of diabetics and (5) trends and prevalence of diabetes in the general population based on mortality and survey data

Teaching the Diabetic Patient

Hugh L C Wilkerson, Diabetes Branch, U S Public Health Service, Boston, Lester J Palmer, John A Reed and Randall G Sprague, American Diabetes Association, Brooklyn, N Y, and Elizabeth Perry, American Dietetic Association, Chicago

Physicians, dietitians and public health workers have combined to present audiovisual aids for educational use regarding the medical, nutritional and nursing aspects of diabetes A group of consultants will be on hand to discuss the use of the materials presented A film strip covering the different subjects of the audiovisual aids will be shown

Section on Surgery, General and Abdominal

The representative to the Scientific Exhibit from the Section on Surgery, General and Abdominal, is Walter G Maddock, Chicago

Acute Sodium, Potassium and Calcium Deficiencies in Surgical Patients

Robert Elman, Theo E Weichselbaum and Robert Keating, Washington University School of Medicine, St Louis

Surgical patients have been studied by measuring sodium, potassium and calcium levels in the blood, sodium and potassium balances and estimations of blood volume and extracellular space Electrocardiograms have also been used in many of these cases An attempt will be made to evaluate the diagnosis and treatment of various types of sodium and potassium deficiencies These studies have been made possible because of a new flame photometer developed in this laboratory Sodium, potassium and calcium determinations will be made from finger blood within a few minutes as a demonstration of the rapidity and accuracy of the method

Carcinoma of the Breast—Diagnosis and Treatment

Louis P River and Joseph Silverstein, Hektoen Institute, Cook County Hospital and Stritch Medical School of Loyola University, Chicago

This exhibit outlines the statistics deemed essential to consideration of the incidence of breast carcinoma in general practice, and of that incidence observed in a series of 500 clinic patients with breast complaints whose lesions were subsequently subjected to biopsy Error observed in group clinical diagnosis is demonstrated and the sources of such error as related to inspection findings shown by color transparencies Texts outline and transparencies illustrate the experience of the Breast Tumor Clinic of the Cook County Hospital with clinical error in the selection of extent of surgical treatment Findings characteristic of the remote spread of breast carcinoma are illustrated in conjunction with illustration of visible local findings considered indicative of low curability The palliative use of roentgen ray and steroid therapy is shown The clinical importance of a "dominant" lump in the breast, and of complete physical and roentgen ray examination preceding selection of treatment at the time of a positive biopsy is emphasized The material presented is organized so as to be of value both to general practitioners of medicine and to general surgeons

Arteriography in the Management of Vascular Disease

Norman E Freeman, Thomas M Fullenlove and Rutherford S Gilfillan, Franklin Hospital, San Francisco

Arteriography is of particular value in the precise localization of lesions of the blood vessels It is of help frequently in disclosing the nature of the disease process Newer technics in radiography of the blood vessels, such as retrograde arteriography and the use of the Valsalva maneuver, are described by means of posters and drawings Roentgenograms are shown to illustrate the advantages of the newer methods Brief case reports are appended together with photographs and microphotographs of pathologic material removed at operation

Cancer of the Mouth—Treatment and End Results

Gordon B New, J B Erich and K D Devine, Mayo Clinic, Rochester, Minn

The exhibit shows various types of malignant tumors that occur in the oral cavity and the methods of therapy which have been found to give the most effective results at the Mayo Clinic Malignant lesions of the lips, cheeks, upper and lower jaws, floor of the mouth and tongue are considered in detail Special emphasis is placed on carcinomas of the tongue which are particularly serious because of their tendency to undergo metastasis early Malignant lesions at the base of the tongue offer a particularly difficult problem in the point of accessibility to treatment Resection of the mandible by means of surgical diathermy is demonstrated in moulages, as are methods of reconstructing the lower lip and cheek The exhibit suggests principles and plans of therapy rather than inalterable technics

Complicated Peptic Ulcer—A new Treatment, Banthine

Keith S Grimson and C Keith Lyons, Duke Hospital, Durham, N C, and Frank H Longino, Fort Knox, Ky

Complications of peptic ulcer and their cause, particularly hypermotility and hyperacidity are presented, illustrating humoral stimuli (gastrin-enterogastrone) and nervous or cephalic stimuli (vagus) Conventional treatment of complications is outlined and surgical treatment is demonstrated contrasting results of subtotal gastric resection and of vagotomy and gastroenterostomy performed in more than 130 patients in each series Banthine, an orally effective drug with potent atropine and ganglionic blocking properties, is presented with data on animals and patients This drug produces effects approximating results of vagotomy on, e g, gastric acidity and motility Results of use in treatment of patients with peptic ulcer during nine months are illustrated

Surgical Drainage Versus Wicks in Vents Reduced Mortality and Morbidity

Rafe C Chaffin, Los Angeles

Exhibit of moulages in operation showing that wicks do not drain, that wicks should never be called drains and that fluid in a cavity treated with a wick is never drained, but simply overflows when the reservoir is full A new field is added and shows that the bladder can now be kept entirely empty and bladder surgery made much safer with earlier healing The simplicity of surgical drainage is proved Evidence of the effectiveness of the technic amply presented by charts and statistical data

Skull Fractures—Types and Mechanism of Production

E S Gurdjian, J E Webster and H R Lissner, Wayne University College of Medicine and Grace Hospital, Detroit

The exhibit describes the mechanism of production of the various types of skull fractures (linear, comminuted, depressed and perforated) The time of fracture following impact is computed on the basis of strain-gage cathode ray oscilloscope studies Critical energies and velocities in the production of skull fractures are discussed Deformation of the skull following impact is reevaluated on the basis of newer technics Fracture of the base and those at a distance from the area of impact are discussed Experimental skull fractures on human embalmed cadaver heads and pertinent clinical fractures are displayed

Surgery of Complicated Duodenal Ulcer

Frederick P Ross, Richard Warren, Edmund C. Meadows and Robert H Vaughan, Veterans Administration Hospital, West Roxbury, Mass

The exhibit is concerned with a group of 225 patients who, during a period of three and a half years, came to surgery from a total group of 850 patients suffering from duodenal ulcer and its complications Varying categories of patients are shown with the surgical treatment used Special attention is given to perforated ulcer, massive hemorrhage, the difficult duodenal stump and special problems

Quantitative Studies on the Mechanisms of Gastric Secretion

Lester R Dragstedt, Edward R Woodward, Edward H Storer, Harry A Oberhelman Jr. and Curtis A Smith, University of Chicago School of Medicine, Chicago

A quantitative method has been developed for the collection of gastric secretion from Pavlov pouches and the totally isolated stomach of dogs for periods of several weeks to many months As a result of these studies it is concluded that of the total amount of gastric juice secreted in a 24 hour period, approximately 45 per cent is dependent on nervous stimuli, 45 per cent results from the antrum mechanism and 10 per cent or less from the intestinal phase of secretion The significance of these findings in the therapy of peptic ulcer will be pointed out

Operative Cholangiography—Its Technic and Value

N Frederick Hicken and A J McAllister, University of Utah Medical School, Salt Lake City

Drawings, translites, and roentgenograms depict the technic, indications for and value of operative cholangiography Representative cases are selected from the 2,200 cholangiograms Special emphasis is placed on the value of this procedure in localizing common duct hepatic duct and liver stones Also the significance and frequency of refluxing into the pancreatic ducts The technic, indications and errors encountered during cholangiography are stressed The value of cholangiography in detecting need for instrumental exploration of the common bile is presented.

Prevention of Intravascular Clotting by Maintenance of the Plasma Antithrombin Level

John H Kay, Samerill B Hutton, George Balla and Alton Ochsner, Tulane University School of Medicine, New Orleans

Statistical analysis of the antithrombin level in phlebothrombosis and the prethrombotic state will be presented The effect of maintaining the antithrombin level by the use of alpha tocopherol and other substances on the incidence of intravascular clotting will be demonstrated statistically

Surgical Management of Lesions of the Esophagus and Stomach

Kenneth C Sawyer, Alexis E Lubchenco and Ray G Witham, Denver

This exhibit consists of transparencies from 18 cases with roentgenograms, gross and microscopic illustrations of specimens of various malignant lesions of the esophagus and stomach The exhibit is primarily to illustrate the range of operability

Antibiotics in Experimental Gas Gangrene

William R. Sandusky, University of Virginia Department of Medicine, Charlottesville, Va

Pictures and charts present the technic and results of a laboratory study concerned with the use of the newer antibiotics—aureomycin, chloramphenicol and bacitracin—in the prevention of experimental gas gangrene in guinea pigs Excellent prophylactic results have been obtained with these antibiotics

Neoplasms of the Stomach Other than Carcinoma

Harold Lincoln Thompson and Joseph M Oyster, Los Angeles

An exhibit based on a study of 120 cases of neoplasm of the stomach other than carcinoma from clinical and pathologic material at the Los Angeles General Hospital The clinical features indicate that even in benign tumors certain of the symptoms are so serious or so urgent as to be a threat to the life of the patient A significant proportion of all tumors were accompanied with severe bleeding A lesser group of tumors were accompanied with malignant degeneration

Section on Obstetrics and Gynecology

The representative to the Scientific Exhibit from the Section on Obstetrics and Gynecology is Frederick H Falls, Chicago

Bacteriologic Aspects of Vaginal Trichomoniasis

Elmer Belt and J Jerry Lash, Elmer Belt Urologic Group, Los Angeles

The exhibit shows pictures of diverse flora associated with trichomonad vaginitis, causative organism of the so-called syndrome, Trichomonas vaginalis vaginitis, and graphic data supporting laboratory investigations which tabulate organisms associated with the specific vaginitis Graphic data show growth curves of in vitro studies of the effect of vaginal bacteria on the growth of Trichomonas vaginalis Legends of explanatory statements accompany the exhibit Data have been drawn from a two year clinical and laboratory study of the problem of vaginitis, representing material selected from over 100 cases and correlating over 250 strains of bacteria.

Lens Hysteroscope—Diagnosis of Benign and Malignant Lesions of the Uterine Canal

William Blount Norment, Greensboro N C

The exhibit presents a lens hysteroscope for examination of the uterine canal with colored photographs of benign and malignant growths of the fundus of the uterus made through the lens hysteroscope in the living These are the results of eight years experience with photography and observation with a lens hysteroscope of benign and malignant tumors of the uterine canal

Mesonephric Remnants in the Human Female

John W Huffman Northwestern University Medical School, Chicago

The exhibit demonstrates with plaster and wax models the normal embryonic development and regression of the mesonephros in the human female and portrays by photographs, photomicrographs and color transparencies the histologic characteristics of the normal mesonephric remnants and the pathologic entities developing from them The models will be developed serially so that the viewer may follow the growth and degeneration of the mesonephros in its embryonic stages and to correlate persistent remnants in the adult with their embryonic antecedents The photographs and photomicrographs will illustrate vaginal, cervical corporeal broad ligament and ovarian benign and malignant tumefactions of mesonephric origin

Intraperitoneal Injection of Blood

William C Keettel Robert Hardin and Kenneth Kingsbury, State University of Iowa Hospitals, Iowa City

Citrated blood and unmodified blood in varying amounts, as well as isotonic sodium chloride solution, were injected into the cul-de-sac of patients to be subjected to laparotomies The physical and pelvic findings are noted Laboratory findings such as the changes in white blood cell count, sedimentation rates, hemoglobin nonprotein nitrogen, free hemoglobin and icteric index are depicted in chart forms In some instances tagged cells were injected to determine whether intact cells entered the peripheral circulation In addition, the histologic, anatomic and bacterial changes are illustrated.

Obstetric Forceps

Frederick H Falls, University of Illinois College of Medicine and Charlotte S Holt, Illinois State Department of Public Health, Chicago

The exhibit is designed for teaching the subject of obstetric forceps delivery to postgraduate and undergraduate students Sculptured models life size to scale are used with actual instruments in place These are supplemented by drawings and lettered charts giving indications and details of technic in the application of forceps Maternal and fetal pathology incident to this operation is covered together with a section devoted to anesthesia during forceps delivery and management of the newborn after forceps

The Pubococcygeus Muscle—Impaired Function and Therapy

Arnold H Kegel, Los Angeles

The supportive and sphincteric functions of the pubococcygeus were studied in relation to various degrees of genital relaxation and urinary stress incontinence in 500 patients This important muscular diaphragm, which is not reached by episiotomy or usual repair procedures, is shown to respond to muscle education and resistive exercise In the treatment of 300 patients suffering urinary stress incontinence, 93 per cent were relieved In obstetric and gynecologic repair, active exercise aids in restoration of tone, elasticity, and function of the tissues Anatomy, physiology and mechanism of injury and repair are shown by means of roentgenograms, moulages and diagrams

Practical Office Gynecology

WALTER J REICH, MITCHELL J NECHTOW and ANGELA BARTENBACH, Chicago

The exhibit shows practical procedures in office gynecology, such as the diagnosis and treatment of trichomonas vaginitis, the technic of electrocauterization for chronic cervicitis, the management of condyloma acuminatum, the endometrial biopsy, uterotubal insufflation in the study of sterility, the Huhner test, biopsy for the diagnosis of carcinoma, Wylie pessary for primary dysmenorrhea, injection treatment for intractable pruritus vulvae and the use of a simple intrapelvic hydrotherapy apparatus for pelvic inflammatory diseases

Section on Ophthalmology

The section exhibit committee of the Section on Ophthalmology consists of GEORGIANA D THEOBALD, Oak Park, Ill, chairman, DONALD J LYLE, Cincinnati, and PHILLIPS THYGESON, San Jose, Calif

Development of the Ophthalmoscope—Helmholtz Centenary

FREDERICK C CORDES and MICHAEL J HOGAN, University of California School of Medicine, San Francisco, and ORWYN H ELLIS, Los Angeles

The exhibit contains various types of ophthalmoscopes starting with an original Helmholtz ophthalmoscope and going through the various modifications up to and including the recent electrical models In addition, there will be some data on Helmholtz, together with his photograph

Atlases of Ophthalmoscopy, 1850-1950

C WILBUR RUCKER and THOMAS E KEYS, Mayo Clinic, Rochester, Minn

The exhibit presents a collection of all of the important atlases of ophthalmoscopy which have appeared since the invention of the ophthalmoscope by Helmholtz in 1850 The series demonstrates the development during the past century of printing technics and of knowledge of the disorders of the retina A pamphlet will be available for distribution which will give an annotated description of each atlas

Primary Chorioretinal Aberrations with Night Blindness

HAROLD F FALLS and F BRUCE FRALICK, University Hospital, Ann Arbor, Mich , FRANK D CARROLL, New York, DAVID G COGAN, Boston, and P J LEINFELDER, Iowa City

This exhibit reviews the classification of the primary chorioretinal aberrations with night blindness together with the clinical picture, heredity and pathology of the various subclasses of conditions falling into this group The exhibit presents the unanimous views of the above committee appointed by the American Academy of Ophthalmology and Otolaryngology

Ophthalmology—External Diseases, Pathology and Bacteriology

DUDLEY P BELL, University of California School of Medicine, San Francisco

The exhibit shows external diseases in ophthalmology correlated with pictures of the pathologic section and bacteria found in each case Each disease entity is presented with a printed description in each case

Diseases of the Fundus Oculi in Stereoscopic Transparencies

GLEN FLOYD and PETER C KRONFELD, University of Illinois College of Medicine, Chicago

The exhibit consists of 28 individual stereograms, each mounted in its own viewing apparatus, of various pathologic fundus conditions All are actual fundus photographs taken with the Nordenson camera The cases are selected to include, so far as possible, all general types of fundus lesions By this method three dimension visualization is obtained which is frequently not obtainable in ordinary monocular ophthalmoscopy

Section on Laryngology, Otology and Rhinology

The representative to the Scientific Exhibit from the Section on Laryngology, Otology and Rhinology is JAMES B COSTEN, St Louis

Technic of Tracheotomy

A C STUTSMAN, St Louis

The exhibit deals with the technic of tracheotomy Methods of avoiding complications are described and newer uses are given, such as in the treatment of tetanus and poliomyelitis

Direct Laryngoscopy—Simplified Technic

SAM E ROBERTS and FRANK S FORMAN, University of Kansas School of Medicine, Kansas City, Kan

Mannikins made of plaster of paris with mouth and larynx in latex Self-retaining, dual distal lighted laryngoscopes will be demonstrated Each visitor will be allowed to pass the laryngoscope and view the laryngeal lesion There are many models depicting a wide variety of laryngeal pathology

The Attic-Aditus-Antrum Area—Surgical and Nonsurgical Visualization

HOWARD P HOUSE and GILBERT R OWEN, University of Southern California School of Medicine, Los Angeles

The surgical visualization of the Attic-Aditus-Antrum area will be illustrated by a series of colored drawings The endaural approach to this area will be demonstrated by revealing the surgical technic of the simple, modified radical, and radical mastoid operations The surgical anatomy will be described in detail The nonsurgical visualization demonstrates a diagnostic roentgenographic method covering cases studied during the past five years Original films, technical and pathologic details are demonstrated

Tuberculous Laryngitis Treated by Chemotherapy

LINDEN J WALLNER, GEORGE C TURNER, MEYER R LICHTENSTEIN and HENRY C SWEANY, Municipal Tuberculosis Sanitarium, Chicago

The exhibit demonstrates as completely as possible the case history, roentgenograms and photographs of patients, including pretreatment and post-treatment roentgenograms, color photographs of the larynx and transparency charts illustrating the important changes Legends, charts and tables of the results of treatment in 100 cases are included

Radioactive Cobalt—Use in Tumors of the Nasal Cavities

LEWIS F MORRISON, BERTRAM V LOW-BEER and FRANCIS A SOOY, University of California Hospital, San Francisco

Drawings, photographs and models show the methods of application of radioactive cobalt to tumors of the nose, nasopharynx and sinuses Pictures and photomicrographs of illustrated cases are included

Section on Pediatrics

The representative to the Scientific Exhibit from the Section on Pediatrics is ALBERT V STOESSER, Minneapolis

Endocrine Problems in Children

WILLIAM A REILLY, University of Arkansas School of Medicine, Little Rock

The exhibit presents practical endocrine problems in infancy and childhood covering pituitary, hypothyroidism and hyperthyroidism (including radioiodine, I^{131}, studies and therapy), hypoadrenocortical and hyperadrenocortical syndromes (in infancy) of hyperplasia and tumors, precocious puberty and ovarian syndromes (agenesis, tumors especially arrhenoblastomas) Photographs and legends covering diagnosis and especially therapy of proved interest and use to practitioners are shown

Positive Pressure Oxygen Air Lock Designed for Resuscitation of the Asphyxiated Newborn Infant

ALLAN BLOXSOM, St Joseph's Maternity and Children's Hospital Baylor University College of Medicine, Houston, Texas

The positive pressure air lock provides heated and humidified oxygen and air under pressures found at labor Provision is made for cycling of the pressures to approximate the timing of labor uterine contractions Pressures to expand the chest are believed not to exceed 5 cm. of water A number of infants resuscitated in the positive pressure oxygen air lock have been habituated with no stimulation or other treatment by physicians or nurses A few premature infants have required a stay in the lock of seven to ten days The infant death rate at St Joseph s Maternity and Children's Hospital during the few months period the positive pressure oxygen air lock has been in use has fallen from 1 94 per cent to 1 45 per cent

Infantile Cerebral Palsy—Clinicopathologic Correlation

M A PERLSTEIN and HERMAN JOSEPHY, Brain Registry, American Academy for Cerebral Palsy, Chicago

The exhibit presents clinical and pathologic correlations of the brain in cerebral palsy Gross specimens, photomicrographs and photographs as well as pneumoencephalographs and plates, of clinical cases of cerebral palsy are shown, in an attempt to demonstrate the correlation which exists between the etiologies of cerebral palsies, their pathologic representations in the brain and the clinical syndromes observed. Etiologic and pathologic classifications of the disease are presented.

Congenital Tumors with Structural Defects in Childhood

HAROLD W DARGEON, Children's Tumor Registry, Memorial Hospital, New York, and JOHN M KENNEY, Santa Rosa, Calif

Congenital structural defects are observed with frequency in pediatric practice. Many childhood neoplasms are of a congenital nature The exhibit shows examples of the not infrequent occurrence of the tumor and structural anomaly in the same child.

Section on Experimental Medicine and Therapeutics

The representative to the Scientific Exhibit from the Section on Experimental Medicine and Therapeutics is ROBERT W WILKINS Boston

Effects of Increased Adrenal Cortical Function on Tumor Growth

OLOF H PEARSON, LEONARD P ELIEL and FREDERICK C WHITE Sloan-Kettering Institute, Memorial Hospital, New York

The results of experimental studies on the use of pituitary adrenocorticotropic hormone (ACTH) and cortisone in patients with neoplastic disease will be presented with photographs, charts roentgenograms and photomicrographs Data on patients with chronic lymphatic leukemia acute leukemia and lymphosarcoma will be presented. Metabolic data will be illustrated with simplified diagrams Histologic and hematologic data will be illustrated in photographs and roentgenograms Side effects of treatment with ACTH and cortisone such as edema, potassium deficit and alkalosis, will be illustrated in diagrams and charts

Treatment of Tuberculosis of Bone and Joints with Streptomycin

FELIX JANSEY, BRADLEY W CARR and EDWARD A MILLAR, Veterans Administration Hospital, Hines, Ill

A survey is presented of cases of tuberculosis of bone and joints treated at Hines Hospital since February 1947 and serial follow up with pertinent roentgenograms and photographs

Cortisone (Compound E) Pharmacology and Clinical Use

JAMES MALLORY CARLISLE AUGUSTUS GIBSON and ERNEST SCHMATOLLA, Merck & Co Inc. Rahway, N J

The chemistry, hormonal interrelationships and metabolic and hormonal effects of cortisone are portrayed in a series of illustrated charts Graphs, photomicrographs, electrocardiograms and photographs demonstrate the clinical effects of cortisone in a variety of diseases in which it has been used with success

Effect of Pituitary and Adrenal Cortex Hormones and Pyromen in Allergy

THERON G RANDOLPH, JOHN P ROLLINS and MICHAEL ZELLER, Northwestern University Medical School, Chicago

This exhibit consists of a poster demonstration of the comparative effects of pituitary adrenocorticotropic hormone (ACTH-Armour), concentrated adrenal cortex extract (ACE-Upjohn), cortisone (compound E-Merck) and pyromen (Baxter) on the clinical course, the tolerance for specific foods and inhalants, eosinophils and other blood elements, skin test and passive transfers in cases of bronchial asthma hay fever and other allergic syndromes Several patients have received successive courses of these therapeutic agents The exhibit also includes a description of the direct counting chamber glycol-stain technic of enumerating eosinophils with comparative data in the use of this and other eosinophil technics

Studies on the Fate of Nicotine in the Body

H B HAAG, P S LARSON and J K FINNEGAN, Medical College of Virginia, Richmond, Va.

Charts and posters depict what happens to nicotine in the burning cigaret percentage of inhaled nicotine retained by the body, effect of p_H on the urinary excretion of nicotine, relation of nicotine dosage to percentage excreted in urine, rate of excretion and rate of detoxication, relative rate of elimination of nicotine by several species of animal and possible metabolites of nicotine

Steroid Therapy in Cancer

S G TAYLOR III, ROGER MORRIS JR, DANELY P SLAUGHTER, L WALTER FIX, JAMES D MAJARAKIS and RONALD G HALEY, Presbyterian Hospital and University of Illinois College of Medicine, Chicago

Charts, graphs and photographs summarize results obtained with treatment of about 80 patients with advanced cancer of the breast during the last four years with emphasis on indications, contraindications and limitations of these forms of therapy

Dynamics of Endocrine Disease

LAURANCE W KINSELL, SHELDON MARGEN, GEORGE MICHAELS, LIEUT HARRY BARTON (MC), USN, and ROBERT REISS, Metabolic Research Unit, University of California School of Medicine—U S Naval Hospital and The Institute for Metabolic Research of Highland-Alameda County Hospital, Oakland, Calif

The exhibit presents in diagrammatic fashion the normal and pathologic physiology of the glands of internal secretion in the light of present day concepts of endocrine disease

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Section on Pathology and Physiology

The representative to the Scientific Exhibit from the Section on Pathology and Physiology is J J MOORE, Chicago

Diagnostic Tests

HAROLD KAUTZ, Council on Pharmacy and Chemistry, American Medical Association, Chicago

The exhibit presents a classified list of special clinical and pathologic laboratory procedures employed in the diagnosis of disease and estimation of altered function The material is subdivided under (1) organic and systemic functions, (2) structural changes, (3) causative agents and (4) serologic and immunologic reactions Color transparencies of typical hematologic smears of the peripheral blood and bone marrow in various conditions are included A pamphlet giving information on normal and interpretive values of various tests will be made available for distribution to visitors

Flicker Photometry in Cardiovascular Disease

A C IVY and L R KRASNO, University of Illinois College of Medicine, Chicago

The exhibit presents a sturdy accurate flicker photometer suitable for office use together with a demonstration of the results of its use in patients with cardiovascular disease The "nitroglycerin-flicker test" detects the presence of a vasospastic state in the retina and appears to be of value in the diagnosis, prognosis and therapy of cardiovascular disease

Cutaneous Patterns of Violence

Jesse L Carr University of California School of Medicine and Inspector F La Tulipe, San Francisco Police Department San Francisco

Photographs and charts show wound, laceration and contusion patterns from trauma by various types of instruments both from accidental contact and in criminal violence The work is a combined effort of the University of California Department of Criminology the California Institute of Forensic Sciences, the Medicolegal Department of the Medical School, the San Francisco Police Department and the San Francisco Coroner's Office

A New Polychrome—Preparation and Use

Benjamin T Terry, Tacoma, Wash

Directions for making polychrome methylene blue and the stain itself have been greatly improved Ammonia is so volatile its strength is now determined immediately before each use Other changes have been made The new polychrome is richer in red and is a mixture of polychromes made at the same time but differing in the degree of ripeness The various steps in making the polychrome stain will be demonstrated and the new stain will be shown under the microscope on razor sections cut at the exhibit on a small plastic, pocket size microtome Anyone who will follow directions accurately should now be able to make with ease and certainty a beautiful and very rapid stain for frozen and razor sections of tissue

Neoplasia and Hyperplasia in Rats—Results of Chronic Injection

Henry D Moon, Miriam E Simpson, Choh Hao Li and Herbert M Evans, Institute of Experimental Biology, University of California, Berkeley, Calif

Plateaued female rats were given injections of pituitary growth hormone for long periods Many neoplastic and hyperplastic changes occurred in the tissues of these rats, whereas no similar changes occurred in the control of rats given injections of albumen Lymphosarcomas arising in the lungs were present in 6 of 15 rats and peribronchial lymphoid hyperplasia occurred in all rats treated with growth hormone Hyperplasia of the adrenal medulla occurred in all experimental rats Large nodular as well as focal areas of atypical (neoplastic) hyperplasia in 10 of 15 experimental rats Practically all of the growth hormone injected rats had fibroadenomas of the mammary tissue Two of the rats had bizarre ovarian neoplasms

Armed Forces Institute of Pathology

Brig Gen Raymond O Dart, Armed Forces Institute of Pathology, Washington, D C

An illustrated presentation of the features and responsibilities which make this redesignated and reorganized institute an activity and a resource of great significance to civilian and military medicine It is now jointly operated by the Armed Forces and serves as a central laboratory for the Veterans Administration

Blood Diseases—Clinical and Hematologic Manifestations

Carroll L Birch and Louis R Limarzi, University of Illinois College of Medicine, Chicago

The blood, bone marrow and clinical characteristics of the common hematologic diseases are shown by slide projectors and color transparencies In a viewing box a duplicate set of sixty transparencies is displayed for detailed study

Measurement of Peripheral Arterial Circulation

Carl A Johnson, St Luke's Hospital and University of Illinois College of Medicine, Chicago

An instrument for the graphic recording of the peripheral arterial circulation will be demonstrated The circulatory effects of smoking will be projected on the screen from subjects chosen at random from the audience. Lantern slides will be projected on the screen to supplement the demonstration Records from normal patients as well as from patients with cardiovascular disease will be posted A method for measuring the speed of the pulse wave with this instrument will also be shown with illustrative records

Cytologic Diagnosis of Cancer

Herbert F Traut, James F Rinehart, Milton Rosenthal, Seymour M Farber, Lewis Morrison, William J Kerr and Morris E Dailey, University of California Hospital, San Francisco

The exhibit consists of photomicrographs and color transparencies showing diagnostic cells taken from positive smears Cell types from various sources as well as cells which show the various diagnostic criteria of malignancy as seen in smeared cells are shown Microscopes with smears showing classified cells will be available The preparation, staining and screening of material taken from various sources will be demonstrated, with an explanation of the various technical aspects of the cytologic method and related problems

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Section on Nervous and Mental Diseases

The representative to the Scientific Exhibit from the Section on Nervous and Mental Diseases is A B Baker, Minneapolis

Cerebral Angiography

George W Smith and L O J Manganiello, University Hospital, Baltimore

This exhibit includes the historical background of cerebral angiography The technic is described and demonstrated The indications and contraindications as well as the untoward effects are listed on posters The anatomy of the cerebral vascular tree is demonstrated in an artist's drawing and by specimens injected with a contrast medium The normal cerebral angiogram and representative cerebral angiograms with case histories are demonstrated in patients having aneurysms of the circulus arteriosus, verified brain tumors, brain abscesses, Sturge-Weber disease, porencephaly, hydrocephalus and anomalous cortical vessels In cases in which a correlative pathologic brain specimen or biopsy is available these are presented

Psychiatric Treatment in General Hospitals in United States and Canada

A E Bennett, Berkeley, Calif

Results of a survey of all psychiatric facilities existing in general hospitals are shown Advantages and disadvantages of such departments are given Illustrative department model plans from various areas display the physical, organizational and personnel that make up a complete, adequate department Partial service units are also described The future needs, percentage of beds, personnel and departments now in planning are shown

Treatment of Intracranial Aneurysm

Harold C Voris, Mercy Hospital and the Stritch School of Medicine of Loyola University, Chicago

The rationale of the surgical treatment of intracranial aneurysm in various locations is illustrated by large charts Arteriograms of typical aneurysms and drawings and photographs of surgical procedures and anatomic specimens are included An evaluation of internal carotid ligation and direct intracranial attack on intracranial aneurysm is made The use is stressed of preoperative angiography in verifying the presence and location of an aneurysm and in aiding in the determination of the adequacy of the collateral circulation

Neurosyphilis—Treatment with Penicillin and Malaria Therapy

Winfred Overholser, St Elizabeths Hospital, Washington, D C.

Two groups of patients will be presented (*a*) patients treated with penicillin and (*b*) patients treated with both penicillin and malaria Material obtained six months, one, two, three, four and five years after treatment will be shown The effects of treatment on the cerebrospinal fluid, correlated with clinical data will be demonstrated.

Cerebral Localization by Electroencephalogram

Leslie B Mann Jr., Institute of Nervous Diseases and College of Medical Evangelists Los Angeles

This exhibit consists of models and charts indicating localization of cerebral lesions on the basis of electroencephalographic findings The various factors involved in the production of false and true localizing records are considered Included in the group of tracings will be pertinent records showing changes produced by verified organic lesions including neoplastic, vascular, traumatic and degenerative diseases Models and drawings show presumed mechanisms of alteration in the wave patterns

Effect of Head Posture on Spinal Fluid Manometrics

Lawrence I Kaplan and Foster Kennedy, New York.

This is a demonstration of a new diagnostic test, a modification of the Queckenstedt test, to detect early compression of the cervical cord Jugular compression during manometric studies is performed several times, with the head flexed, extended, laterally flexed or rotated and in the neutral position Subarachnoid block in one and not the other positions has been found in 15 cases showing normal results by the ordinary technic. These abnormalities have been correlated with the operative findings

Methods for Studying Lobotomy

Charles E Henry and Robert E Arnot, The Institute of Living, Hartford, Conn

This is a joint exhibit of clinical investigations of lobotomy patients From the EEG laboratory corticograms taken before, during and after operation are demonstrated A new "postage stamp" electrode permitting direct cortical recording throughout will be demonstrated on a brain model From the psychologic laboratory, reports of preoperative and postoperative tests are shown From the therapeutic research laboratory a method of critically interviewing lobotomy candidates will be demonstrated

A Hypothesis of Schizophrenic Behavior

R. L Jenkins and Lucy Ozarin, Veterans Administration, Washington, D C

This exhibit presents the causative elements and developments in the process of schizoid withdrawal and retreat into autistic phantasy leading to the progressive maladaptation and habit deterioration of the schizophrenic patient Recent experimental work on animals demonstrating how repeated frustration produces stereotyped nonadaptive behavior is included The reversal of these processes through modern psychiatric therapy is shown, illustrated by photographs of therapeutic activities in Veterans Administration hospitals

Advances in Electroencephalography

F A Gibbs and W D Stephenson, Veterans Administration Hospital, Hines, Ill, and Pearce Bailey and H A. Kildee, Veterans Administration, Washington, D C.

An eight channel Grass electroencephalographic instrument will be demonstrated, enlarged images of the tracings as they are made will appear on the wall of the booth, at the same time a transparent plastic brain will reveal by the use of lights the anatomic portion under examination Geographic distribution of Veterans Administration installations having electroencephalographic laboratories and qualified personnel, type of instruction in electroencephalography given and contribution to the field of electroencephalography are shown

Section on Dermatology and Syphilology

The representative to the Scientific Exhibit from the Section on Dermatology and Syphilology is Francis W Lynch, St Paul

Leukoplakia of the Mouth—Differential Diagnosis

Clinton W Lane, St Louis, Ashton L Welsh, Cincinnati, Walter C Herold, Colorado Springs and John H Lamb, Oklahoma City

The color transparencies will be used to show the differential diagnosis of various stages and various locations of leukoplakia of the mouth, including the lips Etiology, symptoms, prognosis and treatment will be included in the description of the different cases A graphic exhibit will be included in the demonstration and a talk (tape recorder) on galvanism of the mouth

Lipomelanotic Reticular Hyperplasia of Lymph Nodes

Cleveland J White, Stritch School of Medicine of Loyola University and Thomas C. Laipply, Wesley Hospital, Northwestern University Medical School, Chicago

Chronic dermatitis, often localized, particularly when accompanied with pruritus, may result in a characteristic type of hyperplasia of lymph nodes The microscopic features include distortion of the normal architecture, marked hyperplasia of the reticular cells, which contain melanin, sudanotropic droplets, with infiltration of eosinophilic cells Fifteen cases of dermatitis accompanied with this type of lymphadenopathy are charted as to clinical features and course with illustrative microphotographs Photographs of this nonspecific dermatitis and typical lymph node picture are presented.

Cancer of the Skin and Mucous Membrane—Methods of Treatment

C F Lehmann, J L Pipkin and A C Ressmann, San Antonio, Texas

The exhibit illustrates the various types of skin malignancies, showing the methods of treatment, such as surgical excision, electrocoagulation, cautery, roentgen ray, strong 10 mg radium needles and the weak 1 mg radium needles by means of colored transparencies and colored Kodachromes

Sunlight and the "Cancer Skin"

Charles Phillips and E N Walsh, Scott and White Clinic, Temple, Texas

This is a study in the evolution of some types of precancerous lesions into actual carcinoma of the skin in persons whose skins have an unusual susceptibility toward the development of epithelioma, with sunlight as an extrinsic factor It is demonstrated by moulages, drawings, photographs and photomicrographs of actual lesions Accompanying legends describe this process as seen in a series of over 4,000 clinical cases

Bromide Intoxication—Treated with a Diuretic Chloride

Theodore Cornbleet, University of Illinois College of Medicine and Cook County Hospital, Chicago

Ammonium chloride (and related chlorides) was given to patients that had bromide eruptions and to volunteers that took bromides Between times sodium chloride was given to them too by a set plan that alternated with the ammonium chloride In this way comparisons were made, and results showed that ammonium chloride removes bromide from the body faster than sodium chloride Ammonium chloride belongs to the so called acid diuretic chlorides group This exhibit uses drawings graphs and figures to explain how and why these diuretic chlorides are superior to the sodium salt—the one that is standard for treating bromide eruptions today

Dermatitis from Local Anesthetics

C Guy Lane, Boston, Ralph Luikart, II, Santa Barbara, Calif, and J Walter Wilson, Los Angeles

Dermatitis caused by contact with local anesthetics is relatively common among dentists and in persons who use preparations containing such agents for the relief of itching Cases of dermatitis due to local anesthetics reported in the literature are tabulated in this exhibit. The chemical composition of some of these agents is shown to indicate relationships which may account for multiple and cross sensitizations

Melanin Pigmentation—Biochemistry and Clinical Applications

THOMAS B. FITZPATRICK, Mayo Foundation, Rochester, Minn., and A. BUNSEN LERNER, University of Michigan Medical School, Ann Arbor, Mich.

A summary of recent advances in the biochemistry of melanin formation is presented. The biochemical mechanisms underlying melanin formation are shown and the enzymatic processes involved therein are correlated with experimental and clinical observations on melanin pigmentation. The enzyme tyrosinase catalyzes the oxidation of the aromatic amino acid, tyrosine, to di-hydroxyphenylalanine (dopa) and the oxidation of dopa to melanin. Tyrosinase is widely distributed in nature and has been demonstrated in plants, insects, marine animals and more recently in mammalian tissues including human skin. On the basis of the biochemical data presented and with the help of color photography, certain clinical syndromes associated with increased or decreased melanin pigmentation are explained. These include Addison's disease, the role of the pituitary in human melanin pigmentation, the use of locally applied chemical inhibitors of melanin pigmentation in human subjects and generalized melanin pigmentation associated with metastatic melanoma and melanuria.

Blood Factor in Acute Disseminated Lupus Erythematosus

JOHN R. HASERICK and LENA A. LEWIS, Cleveland Clinic, Cleveland

The blood factor in lupus erythematosus which induces the clumping of leukocytes and the lupus erythematosus cell when added to normal human or dog marrow or cellular concentrates of peripheral blood will be illustrated. It will be shown that the lupus erythematosus factor is directly associated with the gamma globulin fraction of the plasma. Investigations on other characteristics of this factor will be presented. Emphasis will be placed on the technic of using blood and bone marrow preparations as indicators of the presence of the lupus erythematosus factor. The plasma L. E. test, based on the identification of the L. E. factor, will be illustrated and its value in the diagnosis of systemic lupus erythematosus will be shown.

Photography in Dermatology

PAUL FASAL, San Francisco

The technic of close-up photography with 35 mm. cameras enabling dermatologists to take Kodachromes of skin lesions in office or while doing field work is demonstrated. Drawings, photographs and tables explain various types of equipment and light sources. Kodachrome transparencies of clinical lesions and histopathologic slides document the various applications of photography in dermatology. These cover a wide range of dermatoses, as observed by a dermatologist in office and clinics, on house and hospital calls and while doing postgraduate and research work at home and abroad. The creation of a central registry for dermatologic photographs is advocated.

Section on Preventive and Industrial Medicine and Public Health

The representative to the Scientific Exhibit from the Section on Preventive and Industrial Medicine and Public Health is PAUL A. DAVIS, Akron, Ohio.

Ringworm of the Scalp Caused by Trichophyton Sulfureum

EVERETT R. SEALE and J. B. RICHARDSON, Houston, Texas

The exhibit includes photographs, cultural findings, incidence, photomicrographs of hairs and the results of treatment of ringworm of the scalp caused by T. sulfureum.

Amebiasis

E. W. DENNIS, D. A. BERBERIAN and JOHN W. HART, Sterling-Winthrop Research Institute, Rensselaer, N. Y.

The exhibit presents a description of the distribution of amebiasis and the incidence of the disease in various countries, explained by charts and graphs showing that amebiasis is not a tropical disease but is found in the northern portions of the United States as well as Canada in approximately the same amount as in the southern portions of the United States. A history of treatment and a description of laboratory methods of diagnosis is given. A demonstration is given showing Endameba histolytica and the comparative nonpathogenic ameba.

Q Fever

ROBERT J. HUEBNER, EDWARD BEEMAN and LAURI LUOTO, National Institutes of Health, Bethesda, Md., JAMES H. STEELE, Communicable Disease Center, Atlanta, Ga., and WILLIAM L. JELLISON, Hamilton, Mont.

The exhibit presents a review of present knowledge of Q fever, its distribution in the United States and elsewhere and its clinical and epidemiologic features. Special emphasis is given to studies of the disease in California, where it is endemic.

The Community Health Council

THOMAS D. DUBLIN, National Health Council, New York

This exhibit shows how medical and other groups in the community can work jointly for better health through the medium of the community health council.

Chloramphenicol Therapy in Chronic Ulcerative Colitis (One Year Study)

Z. T. BERCOVITZ and THEODORE BAWER, New York University-Bellevue Medical Center, Post-Graduate Medical School, New York

A study of the clinical progress of 24 patients observed for one year reveals that 67 per cent of all patients suffering from chronic ulcerative colitis show either pronounced or moderate improvement during the first month of observation, only 33 per cent failing to show any favorable change. There was decided inhibition of the growth of both Escherichia coli and streptococci from the first to the fourteenth day of chloramphenicol therapy. After the fourteenth day, there was, in spite of continued administration of chloramphenicol, a reversal of the bacterial flora, both quantitatively and with respect to the cultural characteristics. There is no apparent causal relationship between the bacterial flora, as determined by the usual cultural methods, and the clinical response, which seems to be generally favorable. Chloramphenicol therapy is of definite value in the initial treatment period and in subsequent relapses. Chloramphenicol can be used repeatedly and for prolonged periods without evidence of toxic side reactions. In the post-therapy period, patients continued to be improved for extended periods of time, both symptomatically and sigmoidoscopically.

Section on Urology

The section exhibit committee of the Section on Urology consists of JOHN H. MORRISSEY, New York, chairman, ROGER W. BARNES, Los Angeles, and W. W. SCOTT, Baltimore.

Biopsy of the Kidney for Suspected Neoplasm

HENRY M. WEYRAUCH, JAMES L. GOEBEL and J. BRANDON BASSETT, Stanford University School of Medicine and Veterans Administration Hospital, San Francisco

Although biopsy of the kidney is condemned as being hazardous, a method has been developed and its safety proved by the experimental use of radioactive isotopes. Nine illustrative cases demonstrate the clinical application of the method.

Ureteral Injury—Diagnosis and Treatment

ROBERT J. PRENTISS and RALPH B. MULLENIX, San Diego

The exhibit is based on the office experiences in the treatment of 24 private patients who have suffered injury to the ureter during open surgical treatment. The methods of diagnosis, principles, methods and results of treatment are presented.

Obstruction of the Aglomerular Kidney

Frank Hinman Jr and Stanwood S Schmidt, University of California School of Medicine, San Francisco

Since atrophy of the kidney due to hydronephrosis is not comparable to atrophy following obstruction in other organs, experiments were conducted on kidneys of aglomerular fish, the principal difference from mammalian kidneys being the absence of glomeruli and their mechanical filtration The pertinent features of hydronephrosis in the glomerular mammalian kidney are illustrated through the use of charts and illustrations and compared with the results of obstruction of the primary excretory duct of the aglomerular fish, Porichthys notatus Photomicrographs and retrograde pyelograms show the results in this fish Living specimens of marine teleosts with aglomerular kidneys will be exhibited

Transurethral Prostatectomy—Nesbit Technic

Robert T Plumb, San Diego, Calif

The exhibit presents a series of painted clay models which have been sculptured to show various steps in transurethral prostatectomy

A Substitute Bladder and Urethra Using Isolated Cecum as Bladder and Ileum as Urethra

James W Merricks R K Gilchrist, Howard H Hamlin and I T Reiger University of Illinois College of Medicine (Rush), Presbyterian Hospital, Chicago

An exhibit of charts depicting (1) historical background, (2) indications for the procedure, (3) the results of animal (dog) experiments, with gross specimens, (4) photographic enlargements of illustrations of technic for isolating cecum and terminal ileum, ureterocecostomy, restoration of bowel continuity by ileocolostomy and dermal ileostomy with control of urine by ileocecal valve and (5) clinical histories with photographs of urograms

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Section on Orthopedic Surgery

The representative to the Scientific Exhibit from the Section on Orthopedic Surgery is Robert J Joplin, Boston

Sling Procedure for Correction of Splay Foot, Hallux Valgus and Metatarsus Primus Varus Deformities

Robert J Joplin, Massachusetts General Hospital, Boston

This operation was devised to correct splay foot, hallux valgus and primus varus deformities and to relieve the so called metatarsalgia produced by depressed metatarsal heads The technic of the operation consists of transplanting the adductor hallucis muscle through the neck of the first metatarsal and protecting this muscle by passing the fifth extensor tendon across the foot beneath the necks of the metatarsals to maintain the corrected position of the foot This tendon is used also to reef the capsule of the first metatarsophalangeal joint on its medial side thus correcting the valgus position of the great toe The lateral head of the flexor hallucis brevis muscle is carefully preserved together with its sesamoid to prevent overcorrection or a varus position of the great toe Thus the normal length of the great toe is maintained while its take off strength is preserved The head of the first metatarsal is restored to its normal anatomic position over its two sesamoids The spreading of the foot is reduced and the calluses beneath the metatarsal heads disappear Since October 1947, there have been 102 sling procedures performed on 69 patients Roentgenograms and photographs of feet before and after operation will be shown

The Clinical Significance of the Contact-Compression Factor in Bone Surgery

G W N Eggers, Thomas O Shindler and Charles M Pomerat University of Texas—Medical Branch, Galveston

The exhibit consists of microscopic studies of surgical fracture sites showing osseous activity with bony union in surgical fracture sites where the bone is under a contract-compression factor It shows in the same bone in the same animal, under identical conditions within microscopic distance, that the surgical fracture site without compression contact shows no evidence of active union The conclusions in regard to the desirable influence are demonstrated in experimental animals (rats) The use of the internal contact splint and principles involved in accomplishing the clinical application of the contact-compression factor will be demonstrated Other illustrations and diagrams showing the use of the factor with such operative procedures as fusions of the knees, the spine and the hip and similar demonstrations will be presented

Bone Metastases of Neurogenic Tumors of the Sympathetic Nervous System in Children

E William Immermann and Edward L Compere, Children's Memorial Hospital, Chicago

The exhibit deals with a study of 32 cases of neuroblastoma treated at Children's Memorial Hospital over a period of 25 years (1924-1949) Fourteen of these cases had evidence of bone metastases, eleven had no bone changes and seven cases were undetermined Transparencies show roentgenograms, patients gross and microscopic pathology of those cases with bone metastases Charts show the statistical analysis of the primary site of the tumor, orthopedic complaints, age and sex The skull and the long bones were the primary sites of predilection of the metastases The bone changes observed were multiple, localized or diffuse destructive lesions in the metaphysis of long bones, the pelvis and the skull

Suction Socket Prostheses

Charles O Bechtol, University of California and Veterans Administration Berkeley

The purpose of this exhibit is to demonstrate the latest technics in the actual fabrication of the suction socket prosthesis as well as many of the common errors in fitting and alinement of this type prosthesis Live demonstrations will be presented The exhibit also includes the latest development in upper extremity prostheses and other timely research

Tarsal Anomalies and Peroneal Spastic Flat Foot

Frederick S Webster and W M Roberts, Lincoln Orthopædic Clinic, Lincoln Neb

This is an exhibit of certain bony congenital anomalies of the foot which are responsible for the majority of cases of so called spastic flat foot The clinical significance of these anomalies has been almost completely ignored, and until recently they have generally not been recognized Photographs of feet from a diagnostic clinical standpoint are shown, as well as roentgenograms and photomicrographs of the anomalies themselves The various clinical syndromes are enumerated, as well as the indicated treatment of each

Methods of Mechanical Retardation of Length Growth of Bone

S L Haas, Stanford University School of Medicine, San Francisco

The exhibit shows experimental work performed on dogs in which three methods were used to hinder length growth (1) wire loop about the epiphyseal cartilaginous plate, (2) staples placed about the epiphyseal cartilaginous plate and (3) nails or pins passed across the epiphyseal cartilaginous plate Studies were made to determine whether normal or partial growth took place after removal of the restriction Unilateral restriction of growth was also studied

Vascular Complications in Orthopedic Surgery

Donald S Miller and Leo Markin, Chicago Medical School, Chicago

The exhibit presents a resume of the complications seen in a large hospital The diagnosis of vascular conditions classification of complications and treatment are included This is a simple approach to a relatively common problem

Hansen's Disease (Leprosy)—Orthopedic Manifestations and Treatment

J WARREN WHITE, LIEUT JACK W MILLAR (USN) and RICHARD S DODGE, Honolulu, Hawaii

The exhibit shows photographs of typical deformities, diagrams explaining development of deformities resulting from anatomic position of lesions, charts showing changing of treatment and prophylactic measures employed against typical complications

Section on Gastro-Enterology and Proctology

The representatives to the Scientific Exhibit from the Section on Gastro-Enterology and Proctology are EVERETT D KIEFFER, Boston, and J P NESSELROD, Evanston, Ill

Adenomas of Colon and Rectum

ROBERT TURELL, Beth Israel and Harlem Hospitals, New York

The exhibit depicts all types of adenomas of the colon and rectum, namely, the sessile and pedunculated, small and large, lobulated and villous, benign and malignant, and the electrothermic and surgical technics of removal Colored lantern slides showing a variety of pathologic specimens and a latex model are included

Antienzymatic Substances in the Treatment of Peptic Ulcer (A New Compound with Antitryptic, Antipeptic and Antilysozyme Properties)

LEO L HARDT and JOSEPH C CALANDRA, Stritch School of Medicine, Loyola University and Northwestern University Medical School, Chicago

The recent discoveries of newer compounds which inhibit the enzymatic action of pepsin, trypsin and lysozyme have added to the efficacy of the antacid therapy in patients with gastric and duodenal ulcer The addition of one of these compounds to the older antacid combinations, such as aluminum hydroxide and magnesium trisilicate, have increased the efficacy of the medical management of peptic ulcer, particularly duodenal The resulting new mixture has antitryptic, antipeptic and antilysozyme activity A description of the new compound and its physical chemical properties, as well as photographs of its electrophoretic patterns, are presented Roentgenograms and gastroscopic studies showing coating action of the new compound and curves showing the comparative antacid effects between the new compound and mucin are also presented

Common and Acute Anal Lesions—Stereoscopic Kodachrome Presentation

DAVID MILLER, College of Medical Evangelists, Los Angeles

The more common anal and anorectal lesions in the living human are shown on Kodachrome slides stereoscopically, thus illustrating the lesions in three dimensions Charts and posters illustrate the more common acute anal and anorectal lesions, stressing the need of emergency treatment of these conditions

Plasma Proteins in Liver Disease—Electrophoretic Determinations

H R ROSSMILLER and JOHN F WHITMAN, Cleveland Clinic, Cleveland

The plasma proteins have been determined electrophoretically in normal persons and are compared with those occurring in patients with hepatitis, cirrhosis and extrahepatic obstructive jaundice Significant differences are apparent The protein pattern of plasma is correlated with several liver function tests

Functional Morphology of the Liver

HANS ELIAS, Chicago Medical School, Chicago

The cord concept of liver structure is shown to be untenable The liver consists of anastomosing plates, one cell thick. These enclose the hepatic lacunae in which the sinusoids are suspended The portal canals are surrounded by a continuous, limiting plate which consists of hepatic cells The ramification of the portal veins is shown The hepatic artery supplies, separately, the paraportal and the central parts of the lobules The bile canaliculi have solid walls of their own The exhibit consists of drawings, models, photographs and specimens

Clinical Manifestations and Management of Jaundice

FREDERICK STEIGMANN, KARL A MEYER, HANS POPPER, EDWIN STEVENS and ROBERT GOLDBLOOM, Hektoen Institute of Cook County Hospital, University of Illinois College of Medicine and Northwestern University, Chicago

Drawings, photomicrographs and tables present a workable scheme for the differential diagnosis of jaundice by clinical methods and independently by laboratory procedures The results of these two diagnostic approaches are correlated Furthermore, a classification of jaundice is presented by evaluation of the etiologic factors against the background of the clinical and laboratory features Based on these factors, an applicable plan of therapeutic procedure is outlined

Chronic Ulcerative Colitis—Its Allergic Aspects

ALBERT H ROWE, ALBERT H ROWE JR and ROBERT W TUFFT, Oakland, Calif

Statistics on 102 cases studied during a 14 year period show incidence of allergy in the personal and family histories, frequency of positive dietary and drug histories of allergy, the occurrence of complications, fever and arthritis and skin reactions to foods and inhalants Outline of the treatment stresses the control of food and inhalant and drug allergies and the administration of transfusions, sulfonamide and antibiotic drugs as indicated The elimination diets used for the control of food allergy in moderate and fulminating cases will be shown Charts showing reduction of fever, diarrhea with all medications, transfusions and graphs of blood cell counts will be exhibited demonstrating the major role of allergy alone or associated with infection in this disease

Section on Radiology

The representative to the Scientific Exhibit from the Section on Radiology is S W DONALDSON, Ann Arbor, Mich

Simplified Procedure for Percutaneous Intracranial Angiography

DANIEL KORNBLUM and JOHN DREW, Veterans Administration Hospital, Framingham, Mass

Visualization of the cerebral vessels is being used with increasing frequency as a means of diagnosis Interpretation of films lies in a specialized field and the performance of the actual test has been regarded as difficult The use of percutaneous angiography has greatly simplified the procedure, but this fact is not generally known or appreciated by the medical profession at large, since nearly all information on the subject has appeared in specialty journals The purpose of this exhibit is to familiarize the profession with the case, simplicity and safety of the cerebral angiography as carried out by injection of contrast substance into the carotid artery directly through skin

Some Modern Aspects of Radiologic Research

CAPT C F BEHRENS (MC, USN), COMDR JOHN L TULLIS (MC, USN), COMDR E P CRONKITE (MC, USN), COMDR H C DUDLEY (MSC, USN) and LIEUT COMDR F W CHAMBERS (MSC, USN), United States Naval Medical Research Institute, Bethesda, Md

This exhibit displays methods for calibration of instruments and equipment used in radiologic research, handling and use of radioactive isotopes in the study of body functions, diagnosis and treatment of disease and treatment of ionizing radiation injuries

Cancer of the Tongue—Diagnosis and Treatment

George S Sharp, Frank C Binkley, Eugene W Demaree, Robert C Wood and Herbert F Williams, Pasadena, Calif

The recognition of every abnormal pathologic process and prompt biopsy for a definite microscopic diagnosis is imperative to increase the five year cure rate by the present methods with radium, roentgen ray and surgical treatment Precursory lesions are shown with their prophylactic therapy All clinical types of cancer are presented, and actual radiation technics are shown with physical calculations of the tumor doses required for the various tumors

Cerebral Arteriography

C R. Hughes, R E Wise and J R Hannan, Cleveland Clinic Foundation, Cleveland

This is an exhibit of representative cases from a review of 150 cerebral arteriograms, showing localization of tumors by vascular displacement, tumor stains associated with various neoplasms, arteriovenous anomalies and aneurysms with a description of technic

Accessory Sacroiliac Articulations with Arthritic Changes

Lee A Hadley, Syracuse, N Y

Accessory articulations may occur between the ilium and the sacrum in addition to the normal sacroiliac joints The most common is an articular facet which projects downward and medially from the posterior superior iliac spine to a point on the sacrum just lateral to the second posterior sacral foramen Arthritic changes noted were narrowing and irregularity of joint space, exostoses of the joint margins and sclerosis of underlying bony tissue Some of the joints become ankylosed Most of these patients complain of low back pain, and some of them indicate the vicarious joint as tender to deep pressure A review of the radiographic studies of 200 consecutive private patients having these symptoms revealed 33 5 per cent showing evidence of accessory sacroiliac articulations Arthritic changes were seen in 36 per cent of these joints The exhibit consists of dissected specimens and radiographs illustrating this condition

Nasopharyngeal Irradiation—The Relative Merits of Roentgen and Radium Therapy for Benign Conditions

L H Garland, H A Hill, Martha E Mottram and M A Sisson, San Francisco

Charts demonstrate the anatomy of the nasopharynx and the pathology of lymphoid hyperplasia, also comparative dosage with radium and roentgen therapy and the advantages and disadvantages of both

The Role of Radioactive Isotopes in the Private Clinic

Thomas B Carlile, John H Walker, Joseph H Crampton, C S Stone Jr, Hugh W Jones, Randolph P Pillow and William Hannah, Mason Clinic, Seattle, Wash

Charts show organization and personnel of Isotope Department, as well as equipment required, training of personnel, special requirements and utilization of isotopes

Section on Anesthesiology

The representative to the Scientific Exhibit from the Section on Anesthesiology is Scott M Smith, Salt Lake City

Automatic Encephalographic Control of Anesthesia

R G Bickford, Albert Faulconer Jr., D E Soltero and C W Mayo, Mayo Clinic, Rochester, Minn.

The exhibit demonstrates a new method for the control of general anesthesia in animals and in man The method employs the electroencephalogram, which has been shown to provide a reliable index of anesthetic depth, to regulate the dosage of anesthetic agent (ether or barbiturate) By this means smooth anesthesia of any desired depth is automatically maintained by a system which continuously compensates for any deviations from the required level The automatic control is sufficiently accurate to maintain an uninterrupted state of anesthesia for periods up to three days in animals It has been applied successfully to the maintenance of ether anesthesia in man

Endobronchial Anesthesia for Intrathoracic Surgery

John J Bonica and Phillip H Backup, Tacoma General Hospital, Tacoma, and William M Hall, Vancouver, B C, Canada

The exhibit demonstrates the technics of endobronchial intubation for one-lung anesthesia which may be used for various intrathoracic surgical procedures particularly pneumonectomy and the surgical treatment of lung abscess and bronchopleural fistula The exhibit consists of a plastic model of the tracheobronchial tree to which have been attached rubber models of the lungs, which are expansible Various types of endobronchial tubes are also shown The technics of "blind" and direct vision endobronchial intubation can be demonstrated After the tube is in the proper bronchus, it is connected to a gas machine and the intubated lung is inflated, showing the selective collapse of the "diseased" side Drawings, photographs and roentgenograms also show the technic.

Pharmacodynamics of *d*-Tubocurarine Chloride

Frank J Murphy, R C Gill, George Dundas, P J Bailey and H Farquharson, University of California School of Medicine, San Francisco

The exhibit presents (1) botanic specimens and artefacts showing ethnobotany, (2) crude curare specimens, (3) specimens showing steps in refining and pharmacologic evaluation of curare extractives, (4) charts showing nonanesthetic uses of curare, (5) charts showing chemistry of early curare preparations which were and are used clinically and (6) graphs, charts and photographs showing present methods of evaluation and analysis of chemically pure *d*-tubocurarine chloride and its pharmacodynamics

Regional Methods of Anesthesia for Surgery, Diagnosis and Therapy

John W Pender, John S Lundy, R C Adams and D G Pugh, Mayo Clinic, Rochester, Minn

Exhibit shows technic of regional methods of anesthesia and their application to (1) surgery and (2) injection of various agents used in diagnostic and therapeutic blocks It consists of two life-size models showing the needles in proper position for various types of nerve blocks The technics illustrated will be exemplified by a series of abstracts of case histories and roentgenograms showing needles in position for (1) diagnostic injections of a variety of agents for the definition of pain pathways as an aid in the selection of the most effective therapy, such as therapeutic injection, radiotherapy and neurosurgery, and (2) therapeutic applications of these technics

Spinal Anesthesia for Cesarean Section

John Adriani, Douglas Batten and W Branks Stewart Charity Hospital, New Orleans, La

Photographs and diagrams illustrate the technic, complications and their management Emphasis is placed on the hazards of spinal anesthesia in cesarean section and the factors influencing its safety

Tetracaine Hydrochloride for Nerve Block and Infiltration Analgesia

Daniel C Moore, Mason Clinic, Seattle.

The exhibit shows the advantages of tetracaine hydrochloride as well as its low toxicity in dilute effective concentrations Charts show the type of blocks, operations performed and the number of procedures as well as the physical status of the patients

Section on General Practice of Medicine

The representative to the Scientific Exhibit from the Section on General Practice of Medicine is RICHARD MILLS, Fort Lauderdale, Fla

Endocrine Factors in Infertility

SHELDON A PAYNE and EDWARD T TYLER, The Shelton Clinic, Los Angeles

The exhibit presents charts and drawings summarizing the normal endocrine relationships in fertility of both male and female together with the more common disturbances of these relationships which result in sterility of both sexes Therapeutic results in such disturbances as failure of ovulation, threatened and habitual abortion, defective spermatogenesis and impotence are outlined and analyzed

Studies in Prognosis

LOUIS I DUBLIN and EARL C BONNETT, Metropolitan Life Insurance Company, New York

Charts show statistics of mortality among persons with specific history of disease or findings reported or discovered on insurance examination The groups include persons with elevated blood pressure, cardiac murmurs and gallbladder disease and those given a glucose tolerance test Factors influencing the prognosis will be shown This material illustrates the type of information on prognosis available from life insurance records as well as the factual basis of life insurance medicine

Two Animal-Human Parasites—Life-cycles, Diagnosis, Effects and Prevention

C D VAN HOUWELING, J S BENGSTON, E A BENBROOK, R J CYROG and J V LACROIX, American Veterinary Medical Association, Chicago

The exhibit emphasizes the prevention of Trichinella spiralis and Cysticercus bovis infections in man Photomicrographs, photographs, specimens and drawings depict the parasites, their life cycles, effects in swine, cattle and human beings, methods of diagnosis and the importance of cooking meats to specified temperatures

Illustrations of a Common Type of Cancer

E LAWRENCE KEYES and HYMAN J GOLDMAN, St Louis University School of Medicine, St Louis

The exhibit consists of a photograph plus descriptive charts

Treatment of Superficial Cancer by General Practitioner

CHARLES F SHERWIN, St Louis University School of Medicine and Barnard Free Skin and Cancer Hospital, St Louis

For skin and lip cancer of the squamous and basal cell variety, simple excision under local anesthesia with a margin of 1 cm of normal tissue with immediate suture suffices to cure the average small cancer, provided full thickness of skin be excised Suture is often unnecessary on the face, simple cautery excision of full thickness skin with a minimum 7 mm margin beyond the visible and palpable border proves adequate Wounds heal readily, though slowly, the ultimate scar is as good and often better than the scar resulting from skin graft to the face Skin grafting is rarely necessary for the smaller lesions the average practitioner is apt to encounter Melanoma requires much wider excision and should not be attempted outside a hospital

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Section on Diseases of the Chest

The representative to the Scientific Exhibit from the Section on Chest Diseases is EDWIN R LEVINE, Chicago

Diagnostic Problem of Tuberculosis in Older Age

ROBERT J ANDERSON, H F A LONG, R I PIERCE and IRA LEWIS, United States Public Health Service, Washington, D C

The exhibit presents a series of roentgenograms of tuberculosis pathology among persons in older ages who came to physicians as a result of symptoms attributed to other conditions, like asthma, bronchitis and catarrh

Granulomas of the Lung—Bacteriologic and Pathologic Study of Resected Lesions

LYLE A WEED and L B WOOLNER, Mayo Clinic, Rochester, Minn

Pulmonary granulomas may appear grossly as (*a*) solid spherical nodules, (*b*) diffuse infiltrating or (*c*) cystic lesions Histologic examination of such tissues is frequently nonspecific. A definitive diagnosis must be made before rational chemotherapeutic treatment can be carried out This requires isolation and identification of the causative agent To do this, it is necessary to make a thorough bacteriologic study of the surgically removed specimen This exhibit presents (*a*) gross morphology and histopathology of surgically resected pulmonary granulomas, (*b*) method of bacteriologic examination of such tissue and (*c*) types of causative agent identified

Plastic Sponge in Surgical Treatment—Its Use in Pulmonary Tuberculosis

ALLAN HURST, JOHN B GROW, HAROLD M PERLMUTTER and SAMUEL LEVINE, National Jewish Hospital, Denver

Experimental work with plastic sponges of various types has been done in animals, particularly dogs The authors used vinyl copolymer, formalinized polyvinyl alcohol, cellulose and others The first two types have been used in extrapleural operations as plombage substance in humans The exhibit consists of charts, photographs, microphotographs and roentgenograms both of experimental work and work with patients

Paraaminosalicylic Acid (PAS)—Chemotherapy in Tuberculosis

EMIL BOGEN, ARTHUR DJANG and DRAKE WILL, Olive View Sanatorium, Olive View, Calif

Fifty samples of PAS from various sources are shown and their physical and chemical properties compared The development of this treatment is briefly reviewed In vitro and in vivo experimental results are summarized Clinical experiences with PAS, administered in different ways, alone and together with streptomycin, in the treatment of tuberculosis are described

Postmortem Pneumothorax—Study of Chest Mechanics

DAVID SALKIN, Hopemont Sanitarium, Hopemont, W Va, and the West Virginia University School of Medicine, Morgantown, W Va

Artificial pneumothorax was induced in cadavers with extensive pulmonary tuberculosis Many of the results obtained were strikingly similar to those seen in living patients with pneumothorax The chief observations included movement of the bony thorax, movement of the diaphragm, changes in the shape and position of the heart, mediastinal herniation, selective pulmonary collapse, lobar atelectasis and decrease in size of pulmonary cavities Since these effects occurred in cadavers, the importance of the purely mechanical aspects involved in pneumothorax is stressed These findings are discussed from the standpoint of their contribution to the physiology of pneumothorax, roentgen interpretation and clinical application

New Concepts of Bronchial Neurophysiology and Their Clinical Applications

KARL P KLASSEN, DOUGLAS R MORTON and GEORGE M CURTIS, Ohio State University, Columbus

Certain new concepts of bronchial neurophysiology evolved by bronchoscopic and roentgenographic studies before and after high vagus transection are presented The presence and referral of pain of tracheobronchial origin was demonstrated by electrical stimulation through a bronchoscope High unilateral vagus section immediately below the recurrent laryngeal nerve not only abolished pain but also cough from the homolateral bronchial tree without impairment of tracheobronchial clearance and without any discernible effect on bronchial caliber The latter finding was confirmed by the persistence of bronchospasm in patients with intractable asthma subjected to bilateral bronchial parasympathectomy Accordingly, on the basis of the above clinical evidence, high homolateral vagotomy was performed in a series of patients found to have inoperable bronchogenic carcinoma at the time of exploratory thoracotomy Subsequent postoperative evaluation revealed substantial alleviation of pain and cough without untoward sequelae Additional clinical application of the above principle is being directed toward the control of intractable cough and pain of bronchial origin

Section on Physical Medicine and Rehabilitation

The representative to the Scientific Exhibit from the Section on Physical Medicine and Rehabilitation is Walter J Zeiter, Cleveland

Speech Rehabilitation

Lawrence J Linck and Jayne Shover National Society for Crippled Children & Adults, Inc, Chicago, and Herbert Koepp Baker, American Speech and Hearing Association

This exhibit will consist of four booths, each dealing with one aspect of speech therapy (1) cleft palate, (2) articulation, (3) stuttering and (4) cerebral palsy In each booth, a physician who specializes in the management of the particular speech defect and speech clinicians will demonstrate the appropriate methods of examination and speech therapy on a patient suffering from the condition under consideration

Rehabilitation of the Amputee—New Developments and Research in Artificial Limbs

Comdr T J Canty (MC, USN), and Capt B W Hogan (MC, USN), U S Naval Hospital, Mare Island, Vallejo Calif

Rehabilitation of the amputee is depicted by means of photographs and 8 amputees demonstrating training in the use of their prostheses A display panel of the latest types of prostheses that have been developed at the artificial limb department of the U S Naval Hospital on Mare Island will be exhibited

Total (Vocational) Rehabilitation—An Arm of Medical Practice

Thomas B McKneely, Office of Vocational Rehabilitation, Washington D C, Sydney S Norwick, San Francisco, and Harry D Hicker, California Bureau of Vocational Rehabilitation Sacramento, Calif

Complete rehabilitation, ending with remunerative employment in a medically approved job is presented as an arm of medical practice Guidance, vocational training and job placement are available to any patient needing them to overcome job handicaps Corrective medicine, surgery and psychiatry are provided by local rehabilitation agencies to the medically indigent services being rendered by physicians of the client's own choice The use of the patient s own surgeon physiatrist and limbmaker is demonstrated in a clinical setting which can be duplicated in every sizable community in the United States The demonstration will use San Francisco physicians as well as consulting demonstrators with clients of the local rehabilitation agency as patients Vocational training of amputees is shown using the machine lathe. As examples of the most severely handicapped paraplegics will demonstrate medical and vocational steps in rehabilitation

Self-Help Devices in Activities of Daily Living

George G Deaver, Donald A Covalt and Howard A Rusk, New York University College of Medicine, New York

The exhibit consists of photographs and models of self-help devices which can be utilized by physically handicapped persons to perform the basic activities of daily living When physical improvement has reached a maximum, many persons are left with residual disabilities which make it impossible for them to perform functional activities without assistance but the means of simple mechanical devices many times makes it possible for the physically handicapped person to perform the activities necessary in work and self care without assistance (This exhibit was made possible through a research grant from the National Foundation for Infantile Paralysis)

Rehabilitation of the Blind

Louis B Newman and Russell Williams, Veterans Administration Hospital, Hines, Ill, and A B C Knudson and Charles W Bledsoe, Veterans Administration, Washington, D C

This exhibit demonstrates the therapy by which the newly blinded are helped to master their disability at Hines Hospital Two phases of this treatment will be shown (1) physical conversion of common skills to performance without sight and (2) environmental factors whereby a suitable attitude toward life without sight is cultivated

Pool Therapy in Poliomyelitis

Hart E Van Riper and Catherine Worthingham, National Foundation for Infantile Paralysis, New York.

The use of the therapeutic pool as a treatment medium for patients with poliomyelitis and other patients is the theme of the exhibit which features a one-quarter scale pool with basic equipment The physical and physiologic principles underlying the technic of therapeutic exercise are stressed Demonstrations of therapeutic exercises in the pool will be carried out in cooperation with the following staff members of the Orthopaedic Hospital in Los Angeles Charles L Lowman Susan G Roen and Estelle Martin

Basic Physiology of Skeletal Muscle and its Clinical Applications

Khalil G Wakim, Earl C Elkins and Donald J Erickson, Mayo Clinic Rochester, Minn

The properties, structure and function including electrical and chemical processes in normal muscle are correlated and demonstrated Three common methods for the diagnosis, prognosis and assessment of therapy of lesions of the muscles are presented and appraised. The purpose, technic and results of these methods are described Therapeutic exercise and electrical stimulation of muscles is presented from standpoint of purpose, methods and desired results Data showing the effects of therapeutic exercise and electrical stimulation of normal, flaccid and spastic muscles on the circulation in the treated extremities are presented

Newer Methods of Muscle Reeducation Employed in the Rehabilitation of Neuromuscular Disorders

Herman Kabat, O Leonard Huddleston and Rene Cailliet, Kabat-Kaiser Institute, Vallejo, Santa Monica, Calif, and Washington, D C

Patients having various types of neuromuscular disorders will be presented to demonstrate the newer methods of muscle reeducation The physical medicine treatment of neuromuscular disorders such as multiple sclerosis, cerebral palsy, cerebellar disorders anterior poliomyelitis and progressive muscular atrophy will be described and demonstrated Photographs and charts showing some of the results accomplished by physical medicine and physical rehabilitation will be shown and discussed.

MISCELLANEOUS EXHIBITS

Aid to Physicians

R. O Bullis, Los Angeles County Physicians Aid Association, Los Angeles

Posters, drawings, pictures, maps and pamphlets present the story of the Los Angeles County Physicians Aid Association created by the Los Angeles County Medical Association as an agency to care for elderly and/or sick physicians and their dependents

Medical Education

Donald G Anderson, F H Arestad and E H Leveroos, Council on Medical Education and Hospitals, American Medical Association, Chicago

This exhibit displays data on medical education registration and approval of hospitals, training of interns and resident physicians, and technical hospital personnel and medical licensure. Data is included pertaining to lists of approved medical schools, hospitals approved for internships and residencies, approved technical schools, medical school enrolments and the Survey of Medical Education

Voluntary Health Insurance

George Cooley and Howard Brower, Council on Medical Service, American Medical Association, Chicago

A map shows the percentage of eligible population enrolled in voluntary health insurance plans (hospital and medical) together with charts and graphs showing the growth in health insurance, types of plans available to the people and a number of interesting plan characteristics and developments

Certain Aspects of Aviation and Space Medicine

Capt Alfred A Gentilcore (USAF, MSC), Office of the Surgeon General, Washington, D C, Brig Gen Otis Benson (USAF, MSC) School of Aviation Medicine, Randolph AFB, Texas, and Col Walter Carlson, Aero-Medical Laboratory-Wright-Patterson AFB, Dayton, Ohio

The exhibit presents certain physiologic and psychologic findings pertaining to the effects on man of speed and temperature

Medical Motion Pictures

H Prather Saunders, American College of Surgeons, Chicago

The exhibit will consist of charts, posters, photographs and a stereoscopic demonstration of the guiding principles in evaluating medical motion picture films and the evolution of the program of the American College of Surgeons in this field over the past fifteen years A demonstration of the method of improving and standardizing medical motion pictures

Hospital Aid to Medical Practice

Maurice J Norby, American Hospital Association, Chicago

The exhibit shows the services of the American Hospital Association available to the medical profession through member hospitals with which they are affiliated, these include a lending library from the most complete reference file of hospital literature in the world, as well as officially approved manuals of operating procedure, organizational patterns and administrative relationships A stainless steel, fully equipped scale size model formula room will be demonstrated

A Nationwide Program for the Handicapped

Lawrence J Linck, National Society for Crippled Children and Adults

The exhibit shows services and facilities available to physicians in the care and treatment of handicapped persons

MOTION PICTURES

Two motion picture theaters will be in operation continuously throughout the week They will be located in Masonic Hall, adjacent to the Civic Center, where the films will be shown once daily, Monday morning to Friday noon, on a definite schedule

Subdiaphragmatic Renal Exposure Via Eleventh Rib Resection

Henry Bodner, Hollywood, Calif

The film shows improved exposure for the extremely large kidney, utilizing a resection of the eleventh rib and still remaining subdiaphragmatic by stepping down incision to upper border of the twelfth rib Excellent exposure also afforded for adrenal and spleen in this manner Silent, 14 minutes

Pelviolithotomy—Fibrinogen-Coagulum Technic

Col J C Kimbrough (MC) and Major Robert B Rowe (MC) Walter Reed General Hospital, Washington, D C

The picture shows the removal of a calculus from the kidney pelvis by the fibrinogen-coagulum technic The following procedures are emphasized (1) preparation of the fibrinogen solution and the thrombin solution, (2) preparation of the renal pelvis for injecting the fibrinogen and thrombin, (3) simultaneous injection of the fibrinogen and thrombin into the renal pelvis and (4) withdrawal of the coagulum with the stone enmeshed. Silent, 13 minutes

Tumor of the Testicle

James C Sargent, Veterans Hospital, Wood, Wis, and Marquette University School of Medicine, Milwaukee

The film presents several major clinical types of testicular tumors with comment on those most malignant and least radiosensitive for which radical regional gland dissection seems indicated The operation of orchiectomy with radical gland dissection is shown with running comment on its major technical points Sound, 14 minutes

Fenestration Operation for Otosclerosis

George E Shambaugh Jr and Paul Holinger, Northwestern University Medical School, Chicago

This film describes the principle of the fenestration operation by means of animation It takes up the indications and then depicts the operation on a patient, including the preoperative preparation, and the patient three weeks and three years after operation Silent, 25 minutes

A Bronchoscopic Clinic in Kodachrome

Paul Holinger, Kenneth C Johnston and Frank J Novak, University of Illinois College of Medicine, Chicago

In this film, 10 cases of bronchopulmonary pathology are shown The history and physical and roentgen findings of each case are briefly given, followed by photographs of the pathologic changes seen through the bronchoscope. In cases in which a biopsy is taken, photomicrographs of the tissue specimen likewise are shown The film includes pictures of the bronchoscopic operating room and the technic of the bronchoscopic procedure The methods used in endoscopic photography are elucidated together with a sequence showing the camera equipment being used to photograph the tracheobronchial tree during a bronchoscopic examination Silent, 30 minutes

Arytenoidectomy—Open Approach for Bilateral Abductor Paralysis

DeGraaf Woodman, College of Physicians and Surgeons, Columbia-Presbyterian Medical Center, New York.

This motion picture demonstrates a typical case in which paralysis of the vocal cords had resulted from a nerve injury during thyroid operation at an earlier date The removal of one arytenoid cartilage and lateral fixation of the corresponding cord are shown This procedure widens the glottic chink, thus providing an adequate airway for breathing and leading to improved phonation Close-ups of the vocal cords and recordings of the voice, both preoperatively and postoperatively, indicate the results accomplished A short section on voice training methods recommended for such patients is shown Sound, 12 minutes

Direct Laryngoscopy—Simplified Technic

Sam E Roberts and Frank S Forman, University of Kansas Medical Center, Kansas City

This picture demonstrates in full the anesthesia used, mechanical laryngeal head supports, self-retaining, dual distal lighted laryngoscope Operation with the anesthesia is completely demonstrated on 6 patients Silent, 16 minutes

Esophagogastrostomy for Achalasia of the Esophagus

John L Madden, St Clare's Hospital, New York and Long Island College of Medicine, Brooklyn

This film depicts in detail the technic of lateral anastomosis between the esophagus and the fundus of the stomach, proximal to the obstruction at the cardia Sound, 24 minutes

Ruptured Intervertebral Disk

Robert Dean Woolsey, St Louis

The film presents diagnosis, treatment and postoperative care in ruptured intervertebral disk Silent, 29 minutes

Injuries of the Peripheral Nerves

Loyal Davis and George Perret, Chicago, and Chamblee, Ga

This film illustrates the pathology which arises when a peripheral nerve is severed and the physiology of regeneration after the nerve is repaired There is depicted the anatomy of the peripheral nerves most frequently injured, and some well selected cases are used to illustrate the clinical results following nerve injuries Sound 30 minutes

Hemicolectomy for Carcinoma of the Right Side of the Colon (One Stage Procedure)

Philip Thorek, University of Illinois College of Medicine, Chicago

This film reveals the surgical treatment for adenocarcinoma of the ascending colon The patient is a 56 year old man who presented a nonobstructing lesion of the right side of the large bowel In the absence of distention, primary anastomosis was considered the procedure of choice. Following mobilization of the ascending colon in the proper avascular cleavage plane, the last 6 inches of ileum, cecum, ascending colon, hepatic flexure and the proximal half of the transverse colon are removed An aseptic' end to end ileotransverse colostomy was performed Preoperative and postoperative roentgenograms and the patient one year postoperatively are shown Colored illustrations amplify the film Silent, 18 minutes

Surgical Treatment for Patent Ductus Arteriosus

George H Humphreys, College of Physicians and Surgeons and Columbia-Presbyterian Center, New York.

A 3½ year old girl with a patent ductus arteriosus is examined, and the effects of the condition are demonstrated The typical 'coffee-mill" murmur is heard on the sound tract, and the reontgenogram shows characteristic changes in the outline of the heart The surgical approach is made through the anterolateral chest wall at the level of the second interspace The anatomy of the region around the ductus is demonstrated. In this procedure the ductus is ligated at each end, doubly clamped and divided A second ligature placed under each clamp secures the stumps Several months postoperatively the patient is shown to be much more active, no murmur is heard, and the cardiac silhouette on the roentgenogram is nearly normal Sound, 11 minutes

Side to Side Anastomosis of the Portal Vein to the Venacava

Arthur H Blakemore, Presbyterian Hospital, New York

A right thoracoabdominal approach for the establishment of a portal vein to venacava anastomosis for portal hypertension is illustrated in color Resection of the ninth rib and section of the anterior leaf of the diaphragm permits rotation of the inferior border of the liver upward and greatly increases the operative exposure of the hepatoduodenal ligament as well as the venacava This enables the operator to approach the portal vein laterally and posteriorly without the necessity of mobilizing the common duct The technic of a side to side anastomosis of the portal vein to the venacava is demonstrated Silent, 12 minutes

Breast Cancer—The Problem of Early Diagnosis

National Cancer Institute, United States Public Health Service, Bethesda, Md, and American Cancer Society, New York

This is the second in a series of professional teaching films It begins with animation showing the embryonal development of the breasts and histologic changes resulting from hormone activity The proper technic in breast examination by the physician is stressed as is the importance of biopsy as the only certain means of distinguishing between benign and malignant tumors Sound, 34 minutes

Surgical Treatment of Hirschsprung's Disease

Robert B Hiatt, College of Physicians and Surgeons, Columbia-Presbyterian Medical Center, New York.

The film presents a brief explanation of the syndrome, by diagram and roentgenogram, followed by the operation First, through an abdominal incision the peritoneum is opened, and the lower, achalasic portion of the sigmoid is mobilized A clamp is then inserted into the rectum from below, closed around a knuckle of the intestine, and the rectum everted After the abdomen is closed, the everted rectum and achalasic portion of sigmoid are excised, and the mucosa of the remaining sigmoid sutured to that of the anus The sphincter mechanism remains intact, and bowel movements return to normal postoperatively Sound, 15 minutes

Femoral Hernia in the Female and in the Male

Raymond W McNealy, Chicago

The film shows the surgical repair of a femoral hernia in the female in detail from identification and location of landmarks of the femoral artery to the interrupted retention sutures of wire at the completion of surgery The surgical repair of a femoral hernia in the male is also presented, demonstrating similarity of femoral hernia in male and female Silent, 18 minutes

Control of Filariasis in Tahiti

John F Kessel, University of Southern California, Los Angeles

The film depicts activities of the research and control program on filariasis in Tahiti (a joint endeavor of the French Colonial Medical Service and the University of Southern California) Laboratory scenes, clinic scenes, photomicrographs of larvae and adult worms, of vectors and a description of methods of control are included Silent, 22 minutes

Schistosomiasis

Department of the Army, Office of the Surgeon General, Washington, D C

The film portrays the relationship of three types of schistosomiasis with particular reference to their geographic habitat, epidemiology, symptomatology and general control measures Depicted in detail are the various technical, clinical and laboratory procedures necessary for the diagnosis and treatment of infection with Schistosoma japonicum Sound, 27 minutes

Arthropod-Borne Virus Encephalitides

Department of the Army, Office of the Surgeon General, Washington, D C

The film presents a disease problem which is approached by differential diagnostic measures It portrays the diagnosis, treatment and control of Japanese B encephalitis in particular and illustrates the proper approach to the investigation of such a problem Sound, 33 minutes

Congenital Anomalies of the Heart and Great Vessels

T J Dry, J E Edwards, R L Parker, H B Burchell and A H Bulbulian, Mayo Clinic, Rochester, Minn

The film is a pictorial presentation of important congenital anomalies of the heart and great vessels such as (a) tetralogy of Fallot, (b) Eisenmenger complex, (c) ventricular septal defect, (d) patent ductus arteriosus, (e) complete transposition of the great vessels, (f) persistent truncus arteriosus, (g) coarctation of aorta and (h) vascular rings In each case, the significant anatomic deviations from the normal, are demonstrated by means of colored models, and the abnormal circulation resulting from such an anomaly is explained by means of schematic diagrams The mechanisms which produce specific clinical signs and symptoms are correlated with pathologic findings, and the rationale and method of treatment, where applicable, are explained Sound, 45 minutes

Active or Spring Splinting of the Hand

Sterling Bunnell San Francisco

This motion picture shows a system of active or spring splinting to bring about the position of function in the hand and to exercise the hand and forearm, thus preventing stiffening The splints were developed in the last war Additional splints and combinations have been added Silent, 18 minutes

Surgical Approaches to the Scapulohumeral Joint

Leroy C Abbott, Veterans Administration and University of California School of Medicine, San Francisco

The film shows the anatomy of the scapulohumeral joint with animation Surgical approaches for repair in recurrent dislocation, arthrodesis of shoulder and removal of calcified deposits are presented Sound, 30 minutes

The Operation of a Bone Bank

Philip D Wilson, Hospital for Special Surgery, New York

This film is designed to illustrate how a bone bank for refrigerated, homogenous bone is organized and employed The usual sites from which bone is obtained for this purpose and the method of storing it in a deep freeze unit are shown Typical orthopedic operations in which it is used are briefly illustrated Roentgenograms and microscopic studies based on experimental data show how well such bone is assimilated into the body The many advantages to orthopedic surgeons of using refrigerated, homogenous bone are summarized Sound, 22 minutes

Sling Procedure for Correction of Splay Foot, Hallux Valgus and Metatarsus Primus Varus Deformities

Robert J Joplin, Massachusetts General Hospital, Boston

The film shows the extensor tendon of the fifth toe transplanted around and beneath the neck of the fifth metatarsal in the same plane and parallel with the fibers of the transverse head of the adductor hallucis muscle and passed through the neck of the first metatarsal The adductor hallucis tendon is detached from the proximal end of the first phalanx, separated from the flexor hallucis brevis tendon and passed through the same opening in the neck of the first metatarsal and attached to the capsule on the medial side by a silk suture. The complete operative procedure is depicted, and preoperative and postoperative radiographs are included Silent, 15 minutes

Proctoplasty in Radical Hemorrhoidectomy

A Gerson Carmel, Cincinnati

This motion picture shows methods of avoiding undesirable sequelae such as stenosis and seepage that are prone to follow removal of large amounts of hemorrhoidal tissue in extensive cases Plastic procedures are employed which include whole thickness sliding grafts, relaxing incisions, circumferential suturing in segments that have been radially removed and suturing of partially detached cut skin edges to the superior portion of the muscular anorectal ring and mucous membrane Silent, 25 minutes

Proctosigmoidoscopic Findings

David Miller, College of Medical Evangelists, Los Angeles

This film shows the normal rectum, rectosigmoid and lower sigmoid both on insertion and withdrawal of the sigmoidoscope. The more common types of pathology seen on sigmoidoscopy are presented, such as melanosis coli, rectal and sigmoid polyps, rectal malignancy, rectal stricture from amebic ulceration, postradiation proctitis, chronic ulcerative colitis, nonspecific in its various stages, and several other cases of ulcerative colitis Silent, 9 minutes

Inflammatory Ulcerative Disease of the Rectum and Sigmoid Colon

Jay M Garner and J Peerman Nesselrod, Northwestern University Medical School, Chicago and Evanston Hospital, Evanston, Ill

The film consists of proctoscopic views in color, illustrating amebic ulcerative colitis, chronic ulcerative colitis, lymphogranuloma venereum with rectal stricture, chemical proctitis and tuberculous ulcerative proctitis Silent, 25 minutes

Tattooing with Mercury Sulfide for Intractable Anogenital Pruritus

Robert Turell, Beth Israel Hospital, New York.

The film illustrates technic, indications and follow-up observations of this form of therapy based on a study of over 100 patients Complete microscopic studies of tattooed skin are included Silent, 16 minutes

Thiuramdisulfide (Antabuse) in the Treatment of Alcoholism

A E Bennett and L G McKeever, A E Bennett Neuropsychiatric Research Foundation and Herrick Memorial Hospital, Berkeley, Calif

Illustrative cases of chronic alcoholism before, during and after thiuramdisulfide treatment are shown Preliminary hospital and laboratory studies are necessary in the selection of patients for treatment Test reactions of the drug with alcohol and some methods to control the more severe reactions are shown Follow-up psychotherapeutic procedures are essential for sustained results Silent, 15 minutes

Familial Periodic Paralysis

Harold N Perelson, University of Southern California School of Medicine, Los Angeles

A motion picture study demonstrating the recovery in muscular power of a patient in an attack of familial periodic paralysis following massive doses of potassium citrate given orally and correlated with changes in the serum potassium level and the electrocardiogram Silent, 12 minutes

Chronic Barbiturate Intoxication

Harris Isbell and Victor H Vogel, United States Public Health Service Hospital, Lexington, Ky

Motion pictures taken of five human subjects over a period of five months show chronic barbiturate intoxication from daily administration of different barbiturates and severe withdrawal therefrom, including convulsions and temporary psychotic behavior Silent, 16 minutes

Familial Cerebellar Ataxia in Four Brothers

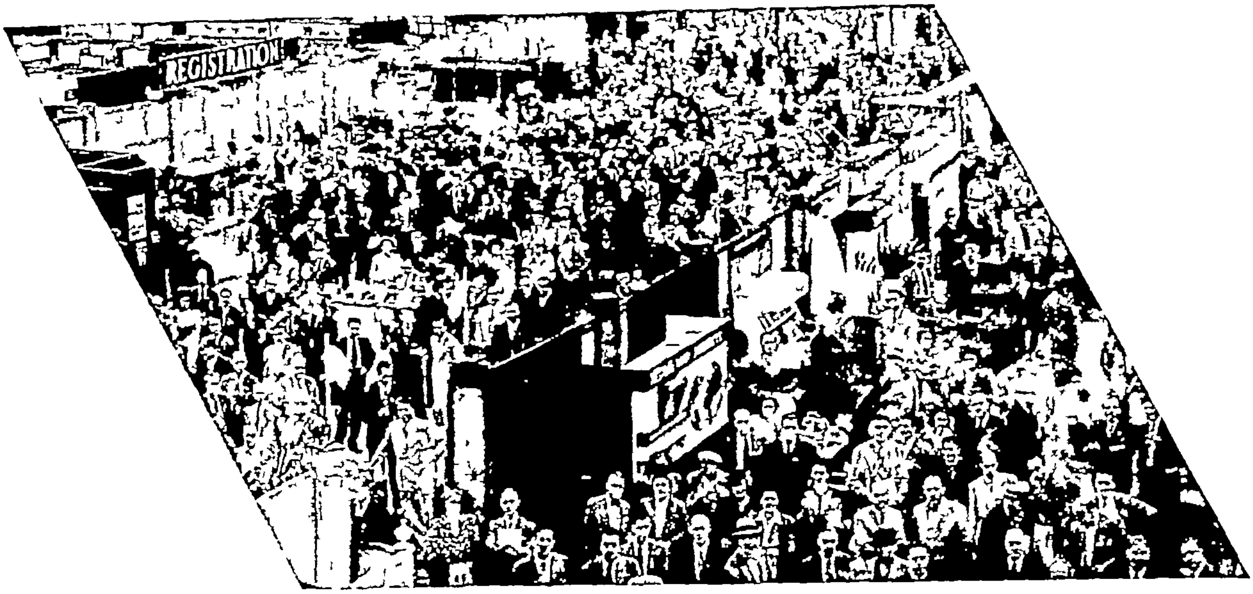
Winfred Overholser, St Elizabeths Hospital, Washington, D C

The film shows four brothers, the first three and the last born of eight siblings In each gait difficulties developed at the approximate age of 7 Ataxia, weakness and speech difficulty were progressive Each showed intellectual retardation (mental age approximately 8) and emotional immaturity The family history did not show similar disease These cases belong in the group of heredofamilial spinocerebellar degenerations and are considered to be variants of Friedreich's disease Silent, 11 minutes

Rehabilitation of a Pianist

Henry H Kessler, Kessler Institute for Rehabilitation, West Orange, N J

The film shows operation of cineplastic motors placed in the stumps of a bilateral arm amputee. The subject demonstrates the use of the prostheses attached to these muscles for such activities as writing and smoking and use of interchangeable hooks and dress hands The subject, a pianist, then plays several selections with the cineplastic hooks This film is a demonstration of the applications of cineplasty, a surgical technic whereby the healthy muscles in the amputee's stumps are utilized to activate a prosthetic arm and hand or arm and hooks independently Sound, 17 minutes



the Technical Exposition

A diversified program of valuable information, practical ideas, new methods an opportunity to acquire first-hand acquaintance with developments in nearly every line of the medical industry attractive displays of more than 300 firms showing hundreds of products, with "newness" the dominant note demonstrations which ordinarily could not be seen outside a well equipped laboratory—that's what the Technical Exposition in the Civic Auditorium offers attending physicians at the San Francisco 99th Annual Session, June 26-30, 1950!

From the pharmaceutical industry alone, more than 75 manufacturers present important products Leading publishers make it possible for you to personally examine almost any book of current interest Producers of dietary products discuss them in the light of today's knowledge Makers of improved, scientific instruments and equipment of all kinds infant items cosmetics and toiletries developed under formulas that recognize known factors of interest to physicians give you a handy opportunity to see or test their specialties

The arrangement and numbering of the booths make it easy to locate any of the exhibits spread throughout three floors of the Civic Auditorium Main arena, Mezzanine (second floor), and Lower Level Booths with numbers A to I are on the main floor, those lettered M or N, on the second floor, and those with LL on the lower level In the main hall (front lobby) are General Registration, Alumni Registration, Transportation desks, and other services for your convenience

Plan to visit the exhibits every day They open at 8 30 Monday morning, June 26, and remain open until Friday noon, June 30 Daily hours are 8 30 a m to 6 p m, except on Friday

To get a general idea of what may be found in each booth, browse through the following pages which contain brief, descriptive items under each firm's name

THOS R. GARDINER

Business Manager and Director of Technical Exhibits

ABBOTT LABORATORIES

Booths A 6 E 8 10

The Abbott exhibit features Norisodrine Sulfate Powder with the Aerohalor—for oral inhalation therapy in asthmatic conditions An action display shows how the powder is released inhaled and carried to achieve a bronchodilating effect. Other products exhibited include Desoxyn Hydrochloride a cerebral stimulant, Nembutal, a short-acting barbiturate with 44 clinical uses and Pentothal Sodium an intravenous anesthetic. Samples and literature on other Abbott products are available

AIR SHIELDS INC

Booth LL 29

The Isolette Chapple infant incubator is being demonstrated in booth LL-29 This unique isolation incubator remains closed at all times, providing for the premature infant the benefit of unchanging atmospheric conditions

W D ALLISON CO

Booth H 25

W D Allison Company has a representative display of their physicians famous *wood furniture* as well as their new DuraSteel metal line It will pay you to see what is now being offered in modern equipment. Allison can also help you with floor planning if you are contemplating building or remodeling

ALMAY BEAUTY PREPARATIONS

Booth H 33 (E½)

Almay is exhibiting the latest developments in hypoallergenic cosmetics These fashionably feminine cosmetics have been developed in the pharmaceutical labora tories of Schieffelin & Company Almay Face Powder is prepared from inorganic ingredients and excludes the usual pigments made from aniline dyes Lipsticks include perfumed, unscented without dye, and special formula Lipstick raw materials testing kits are on display

A S ALOE CO

Booth C 22

THE AMERICAN ACADEMY OF GENERAL PRACTICE

Booth LL 31

The unprecedented growth and the organizational structure of the Academy are portrayed Pages from the significant new medical journal, *GP* are featured along with illustrative literature and examples of official Academy reports Charts show membership growth The literature demonstrates the program in continuation postgraduate study and training for general practice

AMERICAN CYSTOSCOPE MAKERS, INC

Booths E 17 19

An interesting assortment of their new esophagoscopes bronchoscopes, gastroscopes, and endoscopic photographic equipment form a part of the American Cystoscope Makers exhibit A complete line of catheters, diagnostic and operating *instruments, and electro-medical* equipment are also displayed

AMERICAN HOSPITAL SUPPLY CORP

Booth H 5

Two products which deserve special attention are the Krasno-Ivy Flicker Photometer and the Staticator The Flicker Photometer utilizes the Flicker Fusion Threshold to reveal the tendency *toward* heart disease Announced only recently the Flicker Photometer has already received wide acceptance from cardiologists and promises to materially enhance the effectiveness of physical examinations in diagnosing hypertensive and/or coronary heart disease The Staticator is a warning *device for revealing the* presence of static in the operating room in time for its detection before building up dangerous explosive *voltage*

AMERICAN OPTICAL CO

Booths G 5 7, 9 11

AMERICAN PHYSICIANS ART ASS'N

Lower Level

This year's Art Exhibition promises to be the most diversified and artistic ever conducted by APAA Over eight hundred *creations—oil paintings,* water colors sculptures, photographs, etchings, jewelry, miniatures, fine needle work, ceramics, polished *stones and mosaic etc—are* adequately displayed Decorations for this enlarged art booth covering 5500 square feet of hanging space *with excellent* lighting bunting-covered walls, secretary tables chairs and comfortable settees have all been arranged by the executive secretary, Francis H Redewill The physician-artists have become so proficient that this year a large number of trophies are to be awarded in 10 different types of media—the prizes to be presented to winners and televised all over the west during the APAA banquet, held on Tuesday night, June 27

AMERICAN SEAL KAP CORP

Booth N 27

AMERICAN STERILIZER CO

Booths F 22 G 23

Clinical demonstrations of the American 1075 Operating Table and DMC Light, American-MacEachern Obstetrical Table Albee-Comper Orthopedic Table, and Overholt-Comper Thoracic Table are being given at the American Sterilizer booth with a live model Also on exhibition is their All-Purpose Autoclave Model 8816 This small portable pressure sterilizer with semi-automatic operation is meeting with increasing enthusiasm as it *becomes more* widely used It gives the small office and clinic complete pressure sterilizing facilities, including instruments, wrapped fabrics, and sterile water

AMERICAN SURGICAL TRADE ASSN INC

Booth LL-23

The American Surgical Trade Association *features* typical office layouts for physicians, whether for the general practitioner or specialist If you are planning a new *office*, visit this exhibit and learn how you may secure a free copy of their thirty-two page booklet devoted to office planning, prepared in cooperation with the United States Public Health Service

AMES COMPANY, INC

Booth F 31

Ames medical service representatives are showing for the first time their new Universal Model Clinitest Urine-sugar Analysis Set This set does not replace the present No 2106 Clinitest Set It is small, compact in arrangement, and contains Clinitest tablets hermetically sealed in foil Bumintest Reagent Tablets also are exhibited for the first time This is Ames Company's new test for albumin

AMPEREX ELECTRONIC CORP

Booth LL 9

APPLETON CENTURY CROFTS, INC

Booth A 1

Nicholson J Eastman's just published revision of Williams' *Obstetrics* is the featured new title in the Appleton-Century-Crofts exhibit in booth A-1 Also on display are advance proofs of George C Shattuck's *Diseases Of The Tropics* and Olof Larsell's *Anatomy Of The Nervous System* All other current medical titles of this 125-year-old publishing house are available for examination, including the late 1949 edition of John A Kolmer's *Clinical Diagnosis*, Warren H Cole's October 1949 edition of *Operative Technic In Specialty Surgery* and the October 1949 edition of Kelly & Hite's *Microbiology*

ARLINGTON CHEMICAL CO

Booth D 17

Representatives at the Arlington booth will be happy to answer any questions in reference to Arlington products Featured are Caminoids, *their Council-accepted* protein hydrolysate their complete line of allergens, and their newly released salt substitute, Gustamate

THE ARMOUR LABORATORIES

Booths D 13 15

Information on recent developments in the *field* of endocrinology by The Armour Laboratories may be obtained from any of the representatives present at the Armour booth This informative exhibit merits your thoughtful attention

THE GORDON ARMSTRONG CO, INC

Booth F 28

Interest in booth F-28 centers on the Armstrong X-4 Baby Incubator—accepted by the Council on Physical Medicine and Rehabilitation of the American Medical Association and *approved by* Underwriters' Laboratories as well as the Canadian Standards Association Over 10,500 of these outstanding incubators are now in use

ASSOCIATED MEDICAL CARE PLANS

Booth M 4, 5

Associated Medical Care Plans offer an educational and informative exhibit showing the contributions made by the physicians of the United States and Canada in *developing and supporting* the Blue Cross and Blue Shield Plans, together with a brief summary of the importance of these Plans in *making a prepaid* health available to the public on a prepayment basis

AYERST, McKENNA & HARRISON LTD

Booths H 12 14

The center of attraction here is Premarin (Estrogenic Substances, water-soluble)—a highly effective and well-tolerated preparation of *naturally-occurring,* orally-active, conjugated estrogens (equine) The potency of Premarin is expressed in terms of *its principal estrogen, sodium estrone* sulfate Premarin provides convenience of administration and flexibility of dosage Four *potencies* of Premarin Tablets and the liquid form are presented

THE BABEE TENDA CORP

Booth N 2

Three *Babee-Tenda Safety Chairs* including the new Extenda model, are shown in booth N-2 With simple, self-locking push buttons, the legs of the *new model* can be raised to table level for feeding baby at the family table or lowered to the regular position for playtime *Another* interesting model is the C P Babee-Tenda, designed especially for babies or young children with *cerebral palsy*, poliomyelitis or any orthopedic difficulty It offers comfortable, scientific support with security from falls

BABY FORMULAS

Booth LL 8

This up-to-the-minute display shows a scale model plant featuring the industrial preparation of infant formulas With an average *production* of 6000 bottles daily Baby Formulas make deliveries of complete feeding requirements to *nine* hospitals in the Bay area and hundreds of private homes in San Francisco The subscribing hospitals deliver a total *of* over 12,000 babies a year One out of every three babies born in San Francisco is fed by Baby Formulas while in the hospital

BAKER LABORATORIES INC

Booth M 17

A visit here will acquaint you with the improved Baker's Modified Milk—a completely *prepared formula* for bottle fed infants Only Grade A cows' milk is used as the basis of this formula and at no *increase in price The* high protein content, two carbohydrates, the replaced fat, added vitamins mineral salts and iron coupled with *simplicity of preparation* and low cost assure satisfaction for doctor, nurse, mother and baby

C R BARD INC

Booth C 25

Although, as heretofore, the exhibit of C R Bard Inc is predominantly urological, several new and interesting non-urological instruments are displayed These include new tubes for tracheal anesthesia for choledochostomy, for the control of bleeding from esophageal varices, and for the care of "colostomies"

BAUER & BLACK

Booths E 13 15

The Bauer & Black exhibit features a complete new line of standard hospital *dressings in convenient economical* packages for the doctor's office, unique new bandages, made of Webril non-woven fabric, for orthopedic cast padding, Rondic ball-shaped sponges, Kerlix Rolls, of soft, crinkled gauze, Curity dressings and adhesive for every surgical need, and an interesting line of Curity sutures

W A BAUM CO INC

Booth C 3

All *four models of the Baumanometer*, the Phlebaumanometer, and the new Air-Lok Cuff are being demonstrated at booth C-3 Physicians can see at *first hand the* simple and effective principle behind the amazing new Air-Lok Cuff and have an opportunity to discuss their bloodpressure requirements with Baum representatives

BAUSCH & LOMB OPTICAL CO

Booth F 30

Latest Bausch & *Lomb* developments in modern ophthalmic diagnostic and refracting equipment are shown in booth F-30 Of particular note are the new Portable Slit Lamp and the Ortho-Poise Trial Frame Also displayed are the "L" camera for photomicrography, the "E" research microscope with low position, fine adjustments, Fluorescence accessories for quick positive T B diagnosis, and Phase contrast accessories for examining unstained *specimens*

DON BAXTER, INC

Booth C 30

Featured in the exhibit of Don Baxter, Inc are Vacoliter parenteral solutions, including Hyprotigen, a protein hydrolysate solution Also shown is an interesting new line of Baxter *dependable* plastic tubes and catheters, including a Levin-type stomach tube and a nasal oxygen catheter

BECK LEE CORP

Booth H 23

Here you *will see* the most recent developments in electrocardiographs Newly designed instruments with many exclusive features for *convenience* and safety are shown Trained representatives in attendance will be pleased to answer any questions you might have about this remarkable equipment You will find this complete display of all types of electrocardiographs both interesting and informative

BECTON DICKINSON & CO

Booths G 1a, G 12

BEECH NUT PACKING COMPANY

Booth F 4

At the Beech-Nut Packing exhibit is an attractive *presentation* of their thirty-eight varieties of Strained and Junior foods —conveniently and consistently *packed* in glass jars Nutritionists in attendance will be glad to answer any questions regarding these foods, which have *been familiar* to eastern physicians for well over a decade, but are relatively new on the west coast

BELL & HOWELL CO

Booth N 19a

THE BEST FOODS INC

Booth H 27

Enlightening facts about Nucoa a wholesome nutritious vegetable margarine which contains 15 000 units of vitamin A to the pound are available at this exhibit Also of direct significance are the famous Best Foods Hellmann s Real Mayonnaise and other Best Foods products Miss Elsie Stark Director of Consumer Education, welcomes questions about the products

BIB ORANGE JUICE FOR BABIES

Booth F 21

With a mechanical miniature of the Bib plant dispensing chilled orange juice this exhibit presents the latest development in pediatric feeding The wide variation of ascorbic acid in ordinary oranges and how scientific control may guarantee a potency of at least 40 mg of natural vitamin C retained in each 100 cc of the finished product is demonstrated

BILHUBER KNOLL CORP

Booth F 15

A visit to the Bilhuber-Knoll booth will acquaint you with the developments on their fine medicinal chemicals such as Bromural Dilaudid Metrazol Theocalcin etc These time tested prescription chemicals are prescribed alone or in combinations to meet the needs of the individual patient They fill an important place in the physician's armamentarium of dependable medication

THE BIRTCHER CORP

Booth M 15

On display at the Birtcher booth will be found the latest developments in electromedical-electrosurgical apparatus You may examine the new personally certified Electrosurgical Unit the Birtcher Crystal Bandmaster Short Wave Diathermy together with a representative display of accessories which may be used in conjunction with this equipment

THE BLAKISTON COMPANY

Booths B 5 7

Contemporary subjects by well-known medical men are the feature of Blakiston s exhibit Spotlighted is a giant revolving book of Harrison s *Principles of Internal Medicine* The result of 3 years work by over 50 medical authorities it integrates the pre-clinical sciences with clinical medicine to combine knowledge of diseases with understanding Sharing honors for your attention are Ivy s *Peptic Ulcer* a long awaited book by a foremost author its *Blakiston s New Gould Medical Dictionary* the first completely new medical dictionary in 38 years say the publishers Mote s *Proceedings of the First Clinical ACTH Conference* basic information on its clinical use and the new A M A *Handbook of Physical Medicine and Rehabilitation* Blakiston representatives will be glad to discuss these new books and those now in preparation

THE BOOK SHOP BINDERY

Booth H 28

In this exhibit the physician may see at a glance what can be accomplished in his own office or reception room by the use of distinctive publishers authorized bindings for his medical journals Several shelves of standard journals trimly bound with title dates and the owner s name in gold on the cover, may be inspected for materials and workmanship Most important the physician will discover the immediate impression created upon observers by the time-saving space saving ' well tailored bookshelf

THE BORDEN COMPANY

Booths E 9 11 N 12 (N½)

For almost a century, Borden's and their nutritional specialists have been working hand-in hand with the medical profession in the interests of public health and better nutrition What they have learned in the past will inspire and guide them in the future Your confidence imposes upon them a responsibility in continuing to meet the highest standards of modern nutritional science Representatives at the booth welcome the opportunity to discuss Borden products with you

THE GEORGE W BORG CORP

Booths N 9 11

General practitioners as well as other physicians will be interested in seeing the new Fifty-Ninety diagnostic x-ray unit on display in booths N 9 and N-11 As the name implies it has a capacity of 50 milliamperes at 90 peak kilovolts This equipment includes a hand tilting table that permits both horizontal and vertical radiography and fluoroscopy Outstanding features are electronic stabilization electronic timing automatic line compensation and preset milliamperes

JOHN H BRECK INC

Booth F 44

In addition to their complete line of hair and scalp preparations John H Breck Inc feature Baby Breck preparations including an ointment to aid in preventing diaper rash Lavo for washing baby *from top to toe* soap singly and in gift sets and Breck industrial hand preparations Work Cream Hand Cleaner Water Resistant Cream and pH7 Protective Cream

GEORGE A BREON & CO

Booth G 3

Interest at the Breon exhibit centers on their Nisulfazole designed particularly for the treatment of non-specific ulcerative colitis Technically informed representatives are on hand and welcome your visit whether you wish to talk *technicalities*, economics or politics!

BRUCE PUBLISHING COMPANY

Booth LL 3

Saw-Ce Mah (Medicine Man) a fascinating novel by a well-known surgeon—Louis J Gariepy M D of Detroit Michigan—is featured at the Northland Press-Bruce Publishing Company booth Woven into the intriguing story of a young man s struggle to become a successful physician *are* discussions of medical schools internships general practice *specialization* group practice etc A book that every physician will want to read *Saw Ce Mah* has well been called the story of every medical man

THE BURDICK CORP

Booths E 14 N 6

Included in the Burdick display of important physical medicine equipment are Council accepted diathermy apparatus ultraviolet and infra-red lamps and the Rhythmic Constrictor A feature of *especial interest* is their FK-1 Direct-Recording Electrocardiograph which is demonstrated with an "electronic heart'

BURNS CUBOID CO

Booth A 17

The colorful masonite display has come to symbolize 'foot *comfort*' to hundreds of doctors at annual and clinical sessions The central theme again emphasizes *foot* balance as the important theme of *real* foot comfort A large Cuboid balancer portrays prominently the shape and anatomical spacing of the raises"

BURROUGHS WELLCOME & CO INC

Booth I 13

B W & Co' representatives have on hand some of the latest *clinical findings* on two of their outstanding products Globin Insulin B W & Co an accepted intermediate-acting insulin, ready to use requiring no preliminary mixing and Digoxin B W & Co, a 'highly purified' crystalline glycoside obtained from the leaves of Digitalis Lanata

BURTON MFG COMPANY

Booth F 38

Their newly developed Super Power Light is on display at the Burton booth *This* unit is said to provide hospital-type lighting *for* the doctor s office at a low price Recent advertising and literature indicate that the unit is extremely popular In addition Burton also exhibit their line of ultraviolet black lights recently accepted by the A M A Council on Physical Medicine and Rehabilitation Their usual lines of microscope illuminators examining lights *illuminated magnifiers are also* displayed

CALGON INC

Booth LL 22

A great aid to soap in attaining healthful cleanliness is demonstrated by Calgon, Inc in the redissolving of hard water deposits by Calgon Calgon eliminates soap film assures brighter softer clothes cleaner dishes and scum-free personal bathing In mechanical dishwashing Calgonite compounded of Calgon and alkali solves the sanitation problem arising from film-retained soil

CAMBRIDGE INSTRUMENT CO INC

Booth F 32

The new Cambridge Simpli *Scribe model* direct writing *portable electrocardiograph* is one of many important developments on view Simpli-Trol portable and mobile models of the Cambridge Standard String Galvanometer Electrocardiographs and Electrocardiograph-Stethograph-Pulse Recorders are featured The Cambridge Electrokymograph for recording heart border motion and the Cambridge Plethysmograph which furnishes standardized quantitative and reproducible records of variations in volume of human extremities are other important instruments on view

CAMEL CIGARETTES

Booths H 29 34

Camel Cigarettes feature color slides of background data from their newest research—weekly examinations of the throats of hundreds of men and women smoking Camel Cigarettes exclusively *for* thirty days

CAMERON SURGICAL SPECIALTY CO

Booth H 19

See the new binocular spectacle loupes, mirror type headlites suction coagulation *handle* with numerous accessories for all phases of electro surgery, electrocauterization electro coagulation desiccation and fulguration Cameron surgical units electro-diagnostic lamp and instrument outfits, the *new* stainless steel Boros flexible esophagoscope and other peroral equipment coagulair *and* dualite sigmoidoscopes tele vaginalite illuminated specula endoscopes and retractors *flexible* gastroscopes and stomach camera

S H CAMP & COMPANY

Booth E 16

Displayed here is a complete line of Camp anatomical supports for prenatal postnatal orthopedic visceroptosis sacroiliac hernial and other specific conditions Experts from the Camp staff will be glad to answer questions pertaining *to* the scientific application of these supports and to advise regarding the availability of them in Authorized Service departments of stores throughout the country

CARNATION COMPANY

Booth C 21

At booth C-21 you will *see an animated* exhibit showing a series of colored translites *highlighting* the modern evaporating production methods used by the Carnation Milk *Company* Clear and concise reasons for prescribing Carnation Evaporated Milk for *infant* feeding child feeding and general diet purposes are indicated Interesting literature is available for distribution

G W CARNRICK CO

Booth N 39

A showing of the recently introduced Dioloxol (brand of mephenesin) affords an opportunity to learn more about this new muscle relaxant for certain spastic and neurologic disorders Other products displayed are Thelestrin in Sesame Oil *and* Thelestrin in Aqueous Suspension—Injectable estrogen preparations available in an exceptionally wide range of potencies and package forms Specimens and professional literature on all items are available at the booth

WILMOT CASTLE CO

Booths G 24 26

Explosion-proof, portable, surgical spotlights of an advanced design are being shown by Wilmot Castle *Company* Floating arm mounting, easy provision for bulb *replacement*, etc, are some of the advantages you will hear about

THE CENTRAL PHARMACAL CO

Booth N 31

Their new and improved Theophylline Compound—Theophylline-Sodium Glycinate (Synophylate)—is emphasized in *Central's booth* Also *displayed* are Central's original triple-sulfa preparations in suspension, palatab and tablet forms, and their aqueous suspensions of natural estrogenic substances—Estronol A friendly welcome is extended to all physicians

CHICAGO PHARMACAL COMPANY

Booth C 31

One of the country's oldest pharmaceutical houses *(originating* as Halsey Brothers, 1855) but a new A M A exhibitor *at the San Francisco 1950* meeting, Chicago Pharmacal Company stress first their complete manufacturing facilities and show the *manufacture of digitoxin from the green* plant to the tablet in the Chimedic laboratories Exhibited second are the many available, convenient dosage forms of estradiol, U S P Calcium therapy (levulinate *form) data also provides considerable* interesting discussion material

CHILCOTT LABORATORIES

Booth H 1

Chilcott Laboratories, Division of The Maltine Company, exhibit Cellothyl, dramatic new constipation corrective which has attracted such widespread clinical interest This unusual preparation — methylcellulose in *easy-to-take tablets* —acts to provide bland, inert bulk selectively in the colon where bulk is needed to *encourage peristaltic* function and normal elimination Extensive clinical data on the use and advantages of Cellothyl in stubborn constipation and related dysfunction is available

CHILEAN *IODINE* EDUCATIONAL BUREAU

Booths M 23 24

The Chilean Iodine Educational Bureau exhibit calls attention to the place of *iodine in surgery*, medicine, and nutrition Samples of U S P N F, and Council-accepted preparations containing iodine are displayed Representatives on hand offer the Bureau's services without cost or *obligation*

CHURCH & DWIGHT CO INC

Booth E 7

The use of Arm & Hammer and Cow Brand *Baking Soda as a dentifrice* is emphasized in the Church & Dwight exhibit Colorful little booklets suggesting its application in cleaning teeth are on display and handy pocket-sized samples especially suitable for *traveling may be had* at the booth

CIBA PHARMACEUTICAL PRODUCTS, INC

Booth D 2

Enlarged kodachromes showing various *dermatoses*—carefully selected from the pictorial files of the Department of Dermatology and *Syphilology*, *Skin and* Cancer Unit of the New York University Hospital —are utilized in the Ciba exhibit Representatives will be glad to discuss the role of Pyribenzamine in the symptomatic treatment of allergic conditions

CINCHONA *PROD INSTITUTE* INC

Booth LL 13

This exhibit shows colored illustrations of the plasmodium of malaria based on *drawings made* at the Institute of Tropical Hygiene in Amsterdam It also shows illustrations of cinchona plantations in Java, research laboratories, and an outline of the research grants made by the Cinchona Products Institute to various medical colleges Publications on the use of cinchona alkaloids are available for *distribution*

CLAY ADAMS CO INC

Booth N 33

COCA COLA COMPANY

Booth I 20

Ice-cold Coca-Cola is being served through the courtesy and cooperation of the Coca-Cola Bottling Company of *California*, San Francisco, and The Coca-Cola Company

WARREN E. COLLINS, INC

Booth A 26

At booth A-26 Warren E Collins, Inc, *exhibits* the 1950 model of the Drinker-Collins Duplex Respirator The new Collins Respirometer used in pulmonary disease is also shown The Collins Metabolex (waterless), the Benedict-Roth (water-*seal)* which meets the most exacting metabolism requirements, the Collins Vitalometer (vital capacity), and the Collins Oxyflo (open top) oxygen tent will be of special interest

COLSON EQUIP & SUPPLY CO

Booth LL 17

Included in this exhibit of hospital furniture and equipment are two new items of general interest the Bayfront Electric Runabout, which can be adapted to the infirmities of the invalid by modification *of controls and seating arrangement, and* a new Bedside Electric Compress Heater to handle compresses of any size up to an average bath towel

COLWELL PUBLISHING CO

Booth A 9

Complete medical records, attractively and logically designed—that's the keynote of the Colwell exhibit You will see a wide *variety of forms for medical histories* in many sizes and styles The Daily *Log for Physicians provides the basis of* a system of sound practice management and complete figures for your tax returns *Here is a chance* to talk over the business side of your practice with experienced representatives

C S C PHARMACEUTICALS

Booth I-11

The C S C display presents the phenomenon of antibiotic synergism Graphic representation is *made of results* obtained *both in the laboratory* and experimentally in patients To prove synergism between two antibiotics it is necessary to demonstrate that a mixture of the antibiotics each present in sublethal concentration, is in itself lethal to the test organism This has been accomplished not only with a variety of test organisms in vitro, but also with patients afflicted with subacute *bacterial endocarditis* due to streptococci highly resistant to penicillin alone

COMPASS TRAVEL BUREAU INC

Booth LL-18

Compass *Travel Bureau* specializes in travel arrangements for physicians, and this year, as in previous years has a series of escorted *medical* tours to Europe some of them arranged to coincide with the following international *medical congresses* to be held in Europe this summer Cancer Ophthalmology, Radiology, Pediatrics, Cardiology *and* Psychiatry

CONTINENTAL MEDICAL BUREAU

Booth H 28

CORECO RESEARCH CORP

Booth LL 28

Exhibited here is the Coreco Automatic Color Camera designed to photograph all surface areas of the body, from 1 to 1 close-up pictures to half-body size and all cavities such as mouth throat, ear, nose vagina, *and rectum* The Camera carries its own specially developed, fully color-corrected bulb and a *mechanism for* complete control of its color temperature and exposure within the camera itself There is an *automatic* view finder synchronized with the automatic camera mechanism to permit viewing until a *fraction* of a second before exposure The Camera provides for automatic focusing

COUNCIL ON WHITE MINERAL OIL

Booth N 18 (S½)

Recent investigations relative to the use of mineral oil *are available* at this exhibit Investigations of the absorption of mineral *oil and the effect* of mineral oil on fat soluble vitamins in the diet have revealed interesting data which is presented Samples of U S P Mineral Oil are available, together with literature *concerning mineral* oil

CUTTER LABORATORIES

Booths E 4 6

Especially interesting to physicians is the section of Cutter's exhibit devoted to human blood fraction products Fractionated *from pooled human plasma* by a process developed in cooperation with Dr Edwin J Cohn of Harvard Medical School these products include Hypertussis for passive prevention and treatment of *whooping cough, Immune Serum Globulin* for measles therapy Fibrin Foam, an absorbable surgical sponge, etc The Saftiflask System for administration of parenteral therapy in the hospital is another feature of Cutter's exhibit Latest developments in expendable administra*tion equipment* is shown, as *well* as the Cutter Safti-System designed for simplified blood and plasma banking Cutter's pediatric display highlights a complete line of purified low-dosage immunizing *agents, including* Dip-Pert-Tet, and Alhydrox

DAVIES, ROSE & CO LTD

Booth C 9

Davies, Rose & Company take pleasure in again exhibiting at an A M A meeting Their preparations best known to the medical practitioners of California are *featured* Pil *Digitalis*, Quinidine Sulfate Tablets, and Stramonium Pills—already widely prescribed throughout the country

DAVIS & GECK INC

Booth C 6

Davis & Geck, surgical suture manufacturers, feature the complete line of D&G Atraumatic needle items by means of an ingenious needle chart that permits surgeons and the purchaser of sutures to readily find the type of *material for a* particular needle The actual needles are molded in a plastic block with complete specifications as to *diameter* of wire are diameter and type of point Also shown for the first time is a new type of needle for eye surgery incorporating a special type of grinding which is described as an inverted cutting edge This needle is extremely sharp and will undoubtedly find many other applications in surgery

F A DAVIS COMPANY

Booth C 1

New teaching and reference books are displayed for your examination in booth C-1 Your special attention is called to the fourth edition of Stroud's *Cardiovascular Diseases*, the second edition of Troncoso's *Internal Diseases of the Eye*, the second edition of McCrea's *Clinical Cystoscopy The Cyclopedia of Medicine Surgery and Specialties* Other well-known units of interest include *Clinical Radiology*—Pillmore *Reconstructive and Reparative Surgery*—May, *Treatment in General Medicine*—Reimann, *Clinical Interpretations of Laboratory Findings*—Goodale *Clinical Neurology*—Alpers *Pain Syndromes*—Judovich and Bates *Dermatology*—Greenbaum, *Proctology*—Smith and many others

DAVOL RUBBER COMPANY

Booth F 18

At the 1950 A M A Convention Davol Rubber Company introduces the new Dr Sengstaken Tube and Balloon for the control of bleeding from esophageal varices *the latest in colostomy* and ileostomy appliances, new developments in surgical tubing, and the most recent advancements in surgical and hospital rubber specialties

MRS DAY'S IDEAL BABY SHOE CO

Booth M 8

Attending pediatricians especially will be interested in spending some time visiting booth M-8 Capable attendants will be glad to give any and all assistance possible to inquirers in regard to the care of baby *feet and their* correct fitting

THE DENVER CHEM MFG. CO INC

Booth M 13

Galatest for the instantaneous determination of urine sugar and Acetone Test (Denco) for the detection of acetone in urine are exhibited Be sure to see a demonstration of these 'spot tests for sugar and acetone. Galatest and Acetone Test (Denco) offer advantages of accuracy simplicity and economy in routine urinalysis

DE PUY MFG COMPANY

Booth C 24

Fracture Appliances and their application keynote the De Puy exhibit Sherman bone plates Smith-Petersen nails *Lorenzo Half-Thread hip screws*, and other items for internal fixation of bones—all made of S.M O Stainless Steel—will also merit your attention A complete line of modern splints and other equipment for the general practitioner are on display

DEVEREUX SCHOOLS

Booth M 3

Devereux Schools provide the physician with facilities for the education and treatment of children having academic or emotional difficulties Twelve Devereux Schools in Pennsylvania as well as the Devereux Ranch School in California offer a controlled environment and modern training shaped to the needs of each child At Santa Barbara the three hundred and fifty acre ranch school bordering on the Pacific Ocean has an enrollment of seventy children. In Pennsylvania there are facilities for over four hundred students Representatives at the booth will gladly answer questions or discuss how Devereux may serve you and your patients

THE DEVILBISS COMPANY

Booth F 1

The convenience and simplification of atomization and nebulization therapy is emphasized by DeVilbiss A new pocket-type fine spray atomizer—which offers special convenience—and their recently released overnight vaporizer are featured items A hand pump proving to be another valuable device for simplifying the home administration of aerosols is shown for your consideration

DICTAPHONE CORP

Booth LL 16

At its A M A exhibit Dictaphone Corporation is demonstrating how busy doctors can save valuable hours every week with the Time Master Doctors are shown exactly how the Time-Master and its plastic record the Memobelt are used to dispatch correspondence record case histories reports diagnoses, and important telephone conversations Dictaphone also explains a new plan that enables doctors to obtain Time-Master equipment without capital expenditure

THE DIETENE COMPANY

Booth F 16

Visit the Dietene exhibit and examine the free diet service for physicians The diets are nutritionally well-balanced easy to follow and made to appear as if they were typed in your office Meritene an economical and palatable whole protein supplement and Dietene a Council-accepted reducing supplement are also on display

DOMUS MEDICA

Booth N 1

A timely exhibit is presented by The *International* Society of Friends of Domus Medica The aim of this *non-profit organization* is the cooperation toward the establishment of world peace by promoting friendship bonds among physicians The society under the honorary presidency of Prof E. Marquis, is open to physicians their families and friends It is organizing corresponding offices and clubs for its members all over the world Medical Days of Friendship are *organized* under its auspices The General Secretary Valentin Charry M D is editor of the *Chronicle of the Domus Medica* (printed in English-French 12 000 copies) A medal of Domus Medica is offered to its fellows

DUKE LABORATORIES INC

Booth F 17

The products on display at Duke Laboratories exhibit include Elastoplast stretchable, adhesive-surfaced bandages and unit dressings, Elastopatch, elastic adhesive protective covering for patch tests Gelocast, prepared Unna-paste bandage, Tecto a protective emollient cream Nivea Creme Nivea Skin Oil and Basis Soap—the Prescriber s Cosmetics and Aquaphor an ointment base

E I DU PONT DE NEMOURS & CO

Booth H 6

DUREX PRODUCTS INC

Booth M 16

E & J MANUFACTURING CO

Booth F-46

Resuscitation is the theme of the E & J Manufacturing Company exhibit Both mask and intra-tracheal techniques of resuscitation are discussed in conjunction with ingenious clinical dolls which graphically illustrate the operation of mechanical resuscitators in adult child or infant cases All of the various models of the famous E & J Resuscitator are being demonstrated

EASTMAN KODAK COMPANY

Booths C 13 15

Latest developments in both black-and-white and color photography as well as medical radiography keynote the Eastman Kodak exhibit Of particular interest is a demonstration of the new Kodak Flexichrome Process for the production of full color medical illustrations The new Kodak Flurolite Camera Combination for all types of medical photography is also shown Featured in the radiographic exhibit *are new* Kodak Contact X-Ray Screens *A complete line of Kodak films* and products for *radiography* and *medical* photography are included in the exhibit

EATON LABORATORIES INC

Booths D 6 I 7

Eaton features the latest Council-accepted addition to the Furacin Family Furacin Anhydrous Ear Solution *N.N R*—for the treatment of bacterial otitis media et externa Cases of chronic otitis of many years standing have responded well to this preparation Other specialties include Tripazine *N.N R*—a soluble triple sulfonamide tablet Paracin *N.N R*—a scabicide pediculicide and ovicide usually *effective* in one application Lorophyn Suppositories *N N.R.*—an effective simple *method* for control of conception

EDIN COMPANY INC

Booths N 55 57

The Edin Company features an improved ink-writing electrocardiograph Other equipment includes their Cardiotachometers Ink-writing Oscillographs *Biological* Amplifiers and other interesting developments This company has pioneered many medical research instruments Their engineers welcome *your inquiries* on special problems

THOMAS A EDISON INC

Booths N 43 45

Edison present the Disc Edison Voicewriter—an outstanding medium for increasing the quality of medical records 100% in one third of the time required for longhand entry Edison's new Subscribers Service introduced for the first time at any public showing offers all the acknowledged benefits of specialized medical instrument *dictation*

J EDWARDS & COMPANY

Booth F 26

Edwards Shoes for children present new styles and orthopedic developments Of special interest to pediatricians are infants shoes incorporating the new Cradl-Heel —designed to provide a better heel seat and encourage proper walking habits in beginners Edwards currently celebrating their fiftieth anniversary extends appreciation to the many who have sent their best wishes

EISELE & COMPANY

Booth LL 1

Introduced at the Eisele exhibit are their new Interchangeable Hypodermic Syringes in 2 cc 5 cc and 10 cc sizes For complete information, meet the representatives at the booth who welcome your visit and offer a special 50% discount during the convention

ELECTRO PHYSICAL LABS., INC

Booth F 5

Cardiotron a pioneer direct-writing electrocardiograph is diplayed in conjunction with the Cardioscan a cathode-ray E C.G designed for many interesting applications Cardiotron features complete automatic compensation *enabling instantaneous* lead switching and producing an abrasion and solvent-proof truly permanent record

J H EMERSON CO

Booth C 34

ENDO PRODUCTS INC

Booth D 19

The Endo exhibit blends the old with the new In an early American apothecary setting appear modern Council-accepted items of Endo research Noteworthy additions to the list are Hycodan a new antitussive effective in smaller doses than codeine Mesopin a gastrointestinal antispasmodic of established effectiveness Norodin, a modern psychomotor stimulant and antidepressant Hyflavin soluble and active riboflavin and House Dust Extract a most highly purified concentrate of that ubiquitous allergen which has become a standard for diagnosis and hyposensitization

ERB & GRAY

Booth M 20

Erb and Gray exhibit their latest models of microscopes incorporating extraordinary recent developments The display includes the Coleman Spectrophotometer Models 6A and 14, designed specifically to meet the needs for modern spectrochemical analyses *in clinical* laboratories Also on exhibit is the new Precision-Warburg apparatus and many other pieces of new laboratory apparatus of particular interest to the medical profession

ETHICON SUTURE LABORATORIES

Booth F 13

New surgical items are being introduced in booth F-13 Among these important products are Bio-Sorb Dispensing Packets —a new packaging of Ethicon s absorbable dusting powder ready to sterilize containing sufficient powder to adequately lubricate the hands of surgeon or nurse and Ethi-Pack, new individually packed surgical silk pre-cut into proper *strands* and ready for sterilization and immediate use—a handy *convenient* method of receiving non-sterile surgical silk

EUREKA X RAY TUBE CORP

Booth N 59

Eureka X-Ray Tube Corporation exhibit a complete line of x-ray and valve tubes including rotating and stationary *anode* units for radiographic and fluoroscopic service therapy tubes in all classes and beryllium window tubes for high intensity soft ray application Featured items are the new and advanced Roturex 50 *rotating* anode unit for fluoroscopic and *spot* film service the Roturex 51 (first showing) designed for self-rectified equipment, and the improved T-RT-H therapy tube

EVAPORATED MILK ASSN

Booth M 26

Register at the Evaporated Milk Association booth for a free copy *of Infant Feeding with Evaporated Milk*—a manual for physicians on the use of evaporated milk in infant feeding—and for copies of *Valing Baby s Formula*—an illustrated booklet for mothers on formula preparation using *terminal* heating. Other publications on the role of evaporated milk in child nutrition maternal and social welfare, public health and general nutrition are available without charge to professional people and for distribution to those whom they serve

FABRIKATORS INC OF MASS

Booth N-41

Of special interest to visiting physicians and hospital administrators is the new Chestpirator hospital model portable respirator, on display in booth N-41 The acclaim of this product from all parts of the world make it an extremely important one for careful checking and consideration

FANCEE FREE MFG CO

Booth I-24

It's a "must" to see, says Fancee Free, the garter belt for the mother-to-be! Your maternity patients will enjoy wearing the Fancee Free, not only during pregnancy but afterwards The all-elastic belt fits around the waist in back, and below the abdomen in front, thus eliminating pressure

H G FISCHER & CO

Booths F-35, 37

Their Spacesaver Radiographic-Fluoroscopic Unit and Examining Table occupies a prominent place in the Fischer exhibit This modern x-ray apparatus of high quality and low price is furnished in four models 250, 100, 50 and 30 milliamperes See what a small amount of office space the unit occupies and how easy it is to change from horizontal fluoroscopy to horizontal radiography without moving the patient from the table Other modern x-ray and physical therapy equipment are also on display

FISHER STEVENS SERVICE INC

Booth C 28

This exhibitor maintains mailing lists of all practicing physicians in the United States, the Possessions and many countries of the world The list is used for addressing a large share of the *direct mail* literature and samples received at doctors' offices Stop by at the booth for counts and full details

C B FLEET CO, INC

Booth G 21

Phospho-Soda (Fleet), a solution containing in each 100 cc sodium biphosphate 48 gm and sodium phosphate 18 gm, is exhibited in booth G-21 The product's controlled action, freedom from undesirable side effect, and ease of administration are some of the advantages illustrated

FLINT, EATON & COMPANY

Booth F-14

The introduction of Choline therapy in early and late cirrhosis of the liver is one of the most interesting of recent medical developments An easy and palatable way of administering Choline to your patients is featured at Flint, Eaton & Company's booth Unusual color photographs of liver pathology also tell an interesting story At the exhibit, be sure to ask for your copy of an up-to-the-minute edition of a comprehensive digest on the present status of Choline therapy

FOLEY MFG COMPANY

Booth H 30

The Foley Food Mill, famous for quickly straining fresh cooked foods for baby and adult diets, is demonstrated on actual foods in booth H-30 Foley representatives will be pleased to show doctors and their wives just how practical the Foley Food Mill is for quickly pureeing vegetables and fruits, removing all fibers, hulls, and seeds

FOREGGER COMPANY, INC

Booth F 19

G H P CIGAR CO, INC

Booth I 22a

Two color films, carrying narration by Lowell Thomas, are shown by the manufacturers of El Producto Cigars One of the films portrays the intricate equipment, skilled workmanship, carefully controlled blending and manufacturing methods which assure the uniform mildness of the finished product The second film explains the packaging methods employed to protect the cigar until it reaches the smoker

GENERAL ELECTRIC CO

Booth G 16

Outstanding features of the exhibit in booth G-16, occupied by General Electric's Lamp Department, are the new De Luxe cool-white and De Luxe warm-white fluorescent lamps Ideally suited for hospitals, clinics, consulting and waiting rooms, these new lamps provide the right light both physically and psychologically At the booth you are invited to try out this illumination on your own complexion Also on display, are GE's germicidal, health, and photo lamps In attendance from the Lighting Research Laboratories at GE's Nela Park, Cleveland, is Mr A H Taylor, research specialist on radiant and germicidal energy

GENERAL ELECTRIC X RAY CORP

Booths G 13, 15, 17

A revolutionary "*building block*" *design* that permits x-ray equipment to grow is one feature of the General Electric X-Ray exhibit The Maxicon line through varied assembly of its 17 components provides a *complete range of diagnostic apparatus* Supermix developer and fixer are shown in new tin containers Plastic inner-lining permits "canning" liquid chemicals for the first time Also featured are Cardioscribe, direct writing electrocardiograph, Inductotherm, high-output diathermy unit, stainless steel refrigerated developing tanks, and other selected x-ray supplies

GENERAL FOODS CORP

Booth C 37

Delicious Instant Sanka Coffee is being served at the General Foods exhibit booth Professional members of their staff will welcome the opportunity to discuss the special qualities of D-Zerta with you

GERBER PRODUCTS COMPANY

Booth F 20

Gerber's announce their newly Council-accepted baby foods—Strained and Junior Plums with Tapioca, and Strained Sweet Potatoes These, plus the complete Gerber service of strained and junior fruits, vegetables, 100% meats, meat-soups, and distinctive cereals, are exhibited The 1950 edition of *Baby's Book* is ready, also, a practical special diet recipes booklet that shows how soft diets may be made appetizing to convalescent adults Professional representatives are at the booth to serve you

GOMCO SURGICAL MFG CORP

Booth H 24

B F GOODRICH CO

Booth LL 33

GRADWOHL LABORATORIES

Booth N 8

At the Gradwohl booth is an attractive presentation and interesting information on the various activities of this organization which include publication of the *Laboratory Digest*, preparation and sale of laboratory reagents, including blood grouping sera, and training of laboratory personnel Proper literature may be had upon registration

THE GRAPETTE COMPANY, INC

Booth N 27a

Visitors to exhibit N-27a on the second floor (near the elevator) are getting an "ice cold" reception—a bottle of Grapette, compliments of The Grapette Company of Camden, Ark Souvenirs from Arkansas are also presented to visitors

GRASS INSTRUMENT CO

Booth N 49

In booth N-49, Grass Instrument Company proudly announces their Model III series Electroencephalograph, recently accepted by the Council on Physical Medicine and Rehabilitation of the American Medical Association for conformity to standards and approved by the Underwriters Laboratories for safety Latest developments in accessory equipment and instruments for electrophysiological research and operating room use are also shown

GRAY MFG CO

Booth F 24

GRUNE & STRATTON INC

Booth C 23

These new G & S books, just published or shown in the form of dummies and complete proofs, will be of particular interest Soskin, *Progress In Clinical Endocrinology*, Sigler, *Cardiovascular Disease* Bauer, *Differential Diagnosis Of Internal Diseases*, Storch, *Clinical Fluoroscopy* Greenblatt, Arnot, and Solomon, *Studies In Lobotomy*, Miller, *Angina Pectoris And Myocardial Infarction*, Wolf, *The Urinary Function Of The Kidney*, Dameshek, *Chemotherapy Of Leukemia And Leukosarcoma*, Meigs and Sturgis, *Progress In Gynecology, Vol II*, Malliniac, *Breast Deformities And Their Repair* Linksz, *Physiology Of The Eye, Vol I Optics*, Menninger and Devereux, *A Guide To Psychiatric Books*, and many others

GUILDCRAFTERS

Booth LL 20

Visitors to the exhibit of Guildcrafters—designers and craftsman of artistic metal-work—will see an attractive display of medical certificates in metal, special signs for doctors, push buttons with the caduceus insculptured or name engraved, Oath of Hippocrates, memorial and heraldic plaques, etc

HAMILTON MFG COMPANY

Booths C 33, 35

Hamilton Manufacturing Company shows a representative group of surgical equipment Special features include three complete *suites of examining room furniture* the Nu-Tone suite, conservative in design and finished in traditional walnut, Nu-Trend in modern styling and finish, and Steeltone in conventional design, finished in gleaming white A newly designed pediatric table in walnut and a laboratory bench in new, cream white finish are also included in the Hamilton display

HANOVIA CHEMICAL & MFG CO

Booth M 2

THE HARROWER LABORATORY INC

Booth G 2

Gastroscopic illustrations keynote the Harrower technical exhibit The healing of a large gastric ulcer under medical management is traced by means of gastroscopic pictures The coating action of Mucotin, a Council-accepted mucin antacid on a gastric ulcer is demonstrated by means of gastroscopic illustrations Gastric acidity control studies with various antacids are graphically presented Special ulcer diet booklets, reprints and Mucotin samples are available at the exhibit

H J HEINZ CO

Booth G 19

The revised 13th edition of Heinz Nutritional Charts is available in booth G-19 It is called *Nutritional Data*, an authoritative reference book on foods and nutrition Be sure to ask for it and have your name placed on their mailing list to receive the *Nutritional Observatory* four times a year Various uses of Heinz Strained and Junior Foods—for infant feeding, gastro-intestinal disorders, geriatrics, etc—are highlighted A special dessert treat made with Heinz Strained Fruits may be sampled

PAUL B HOEBER, INC

Booth A-5

Many distinguished Hoeber books of more than usual importance are being shown for the first time at the Hoeber-Harper booth Hoeber books supplement but do not duplicate the books now on your shelves Among the new volumes you will want to see are Jolliffe, Tisdall and Cannon's *Clinical Nutrition*, Babkin's *Secretory Mechanism Of The Digestive Glands* (2nd Edition), Gold's *Quinidine In Disorders Of The Heart* DeJong's *The Neurologic Examination*, Reynolds' *Physiology Of The Uterus* (2nd Edition), and many others

HOFFMANN LA ROCHE INC

Booth C 11

The Roche exhibit is devoted exclusively to their Council-accepted specialty, Prostigmin The many recognized uses of Prostigmin are always of interest to physicians A staff of experienced representatives will be pleased to discuss Prostigmin and other Roche specialties of interest to physicians

HOLLAND RANTOS COMPANY INC

Booth G 22

Acceptability to patients and product effectiveness are basic considerations in the selection of products for conception control The Holland Rantos Company exhibit different Koromex Sets which you will want to see These attractive, practicable unit packages, and the opportunity for comparison of both jelly and cream base to determine individual preference should appeal to the most discriminating patient

HOLLISTER STIER LABS

Booth C 43

The Hollister-Stier Laboratories are demonstrating the importance of clean, dry raw pollen in their preparation of pollen extracts in concentrated form It is a valuable experience for the physician to observe objectively comparative studies of mass amounts of raw pollen It is interesting and informative to compare the ratio of weight to volume of the various pollens which illustrates their airborne qualities Botanists and technicians are present to assist physicians in their personal diagnostic or therapeutic problems pertaining to the practice of allergy

HOSPITAL BEDHIGHT COMPANY

Booth LL 14

The Hospital Bedhight Commode shown here affords commode service at bed level to the hospitalized patient This convenient commode is destined to become standard hospital equipment for use by cardiac patients obese invalids etc A support bar gives added safety and security The commode vessel is a standard hospital bedpan Both portable and cabinet models are shown

RICHARD HUDNUT

Booths H 13 15

The Richard Hudnut exhibit highlights three stellar groups Richard Hudnut Hair Preparations DuBarry Beauty Preparations and Chen Yu Demonstrators in costume grace the Hudnut exhibit explain the different products to visitors and give away a special gift package and special literature prepared for the convention

HYLAND LABORATORIES

Booth LL 7

ILLE ELECTRIC CORP

Booth M 10

Ille Electric Corporation demonstrate in exhibit M-10 how the care of infantile paralysis, arthritis, and other disabling conditions can be greatly improved by the use of hydrotherapy tanks They will display an improved Mobile Whirlpool Bath

IMPORTED SPECIALTIES INC

Booth LL 6

The Buhl Pocket size Spirometer, which weighs less than one pound and fits into a doctor's kit, is shown in booth LL-6 The relatively comparable and reproduceable readings of the aneroid model and the standard water type spirometer indicates that the new aneroid unit is a reliable instrument The small size, ease of use, and portability are features of the aneroid spirometer of particular value to the physician

INTERNATIONAL COLLEGE OF SURGEONS

Booth B 3

The exhibit of the United States Chapter, International College of Surgeons, presents graphic detailed information concerning the activities of the College in all its phases, the principles upon which the organization is founded and functions the location of its component chapters throughout the world its general and educational program, and the extent of its activities

THE INT L MEDICAL RESEARCH CO

Booth N 51

You will not want to miss the showing of the Bucky Combination Therapy Apparatus which produces three different types of radiation—x-ray up to 80 KV continuous use contact and grenz ray therapy Also exhibited is the Bucky Automatic Color Camera which enables the physician to take internal and external medical color photographs The main feature of this camera is that the quality of the picture does not depend upon the photographic knowledge of the operator since the camera function is fully automatic

IVES CAMERON CO INC

Booth C 27

Several new as well as established products accepted by the A M A Council on Pharmacy and Chemistry are featured at the Ives-Cameron exhibit A M A members and their friends will find the I V C representatives well trained and able to discuss the latest accepted use of the many vitamins and pharmaceuticals marketed by the Ives Cameron Company

JOHNSON & JOHNSON

Booths D 9 11

JONES METABOLISM EQUIP CO

Booth C 29

The exhibit features the new Jones Multi-Basal metabolism unit This new unit is the result of careful research over a twelve year period beginning back in 1938 and is the manufacturer s answer to those of the metabolism-minded profession who have found themselves limited when using the standard type of equipment heretofore available A staff of trained representatives are on hand to explain how this unit fits the size of the machine to the characteristics of the patient and to explain its several uses

JUNKET" BRAND FOODS

Booth H 17

Essential facts on the chemistry of the rennet enzyme and the nutritional significance and psychologic value of rennet desserts in the diets of infants and adults are explained The enzymatic action of rennet in producing softer, finer, more readily digestible milk curds is illustrated by enlarged photos Literature giving the dietary applications of rennet products is available for your reference

THE KELLEY KOETT MFG CO

Booths C 48 50

Keleket proudly presents in booths C-48 and C-50 another first in the development of x ray—their original Add-A-Unit. Designed to 'grow ' with your requirements the Add-A-Unit is well worth your inspection Courteous Keleket representatives in attendance will gladly answer your questions

KELLOGG COMPANY

Booth A 22

Physicians who are interested in diet therapy will want to see Kellogg s new special diet guide folder In compact form are included bland high residue, low caloric high caloric sodium restricted low fat, low residue, high residue, high protein, and high iron diets as well as diets for young children and mothers to be These diets have been carefully outlined following the recommendations of well-known authorities on diet in disease A diet manual giving suggestions for additional restricted diets and various health education pamphlets are also available

KEYSTONE VIEW COMPANY

Booth A 30

Orthoptic training techniques and procedures are being given increased attention in both the popular and professional presses The Keystone View exhibit includes its complete line of visual training equipment with special emphasis on home training prescription units and techniques for the diagnosing and training of strabismics

KIDDE MFG COMPANY INC

Booth C 3

An entirely new, inexpensive model of the Kidde Tubal Insufflator is being introduced here This new model incorporates the exclusive Gasometer pressure control and Flow Meter previously found only in the higher priced models The new Model 700 Insufflator provides complete safety and simplicity for physicians having only occasional requirements for tubal insufflation apparatus The standard model Kidde Tubal Insufflator with Strip Chart Kymograph is being demonstrated, and the Kidde Dry Ice Apparatus with the improved small applicator shown

LABORATORY EQUIPMENT CO

Booth LL 12

Latest precision equipment for the medical profession manufactured by Reichert Optical Works of Vienna presented here first showing in the United States in 15 years Included are microscopes, illuminators phase microscopy accessories, ultraviolet fluorescence accessories for the microscope Microtomes including sliding rotary and frozen section types and knives photomicrographic equipment and other items of interest for the medical and research laboratories

LA FAYETTE PHARMACAL INC

Booth LL 24

Pantopaque (ethyl iodophenylundecylate) a new contrast medium developed especially for myelography, is particularly satisfactory for the study of the lumbar region The entire myelographic examination may be completed in 20 minutes, including the injection and removal of Pantopaque Because of its fluidity, Pantopaque may be passed readily and repeatedly over a defect in the subarachnoid space Clinical evidence indicates a high diagnostic accuracy

LAKESIDE LABORATORIES INC

Booth G 1

The Lakeside booth presents research progress for the past two years in mercurial diuretics The display involves more than fifty experimental compounds of various types, a program continuing at the present time and in the foreseeable future to synthesize more effective, safe useable diuretics The latest news in this research field is featured

LANTEEN MEDICAL LABS INC

Booth C 7

Representatives demonstrate the new Lanteen technique, a dual method of contraception based on the use of Lanteen flat spring diaphragm and Lanteen spermatocidal jelly Two new ethical pharmaceuticals are being introduced Alkagel a pioneer antacid which provides prompt and prolonged neutralization of gastric acidity and relief from peptic ulcer and Vodine, iodine in a special ointment base which makes possible rapid bactericidal action for skin surface wounds, abrasions etc without burning, stinging or staining. Descriptive literature and samples are available

LEA & FEBIGER

Booth B 12

The Lea & Febiger exhibit includes such outstanding new books and new editions as Burch, *Venous Pressure* Cozen, *Office Orthopedics* Kessler, *Principles and Practices of Rehabilitation* McManus, *Medical Diseases of the Kidney* Pullen, *Communicable Diseases* Epstein, *Regional Dermatologic Diagnosis* Holmes and Schulz *Therapeutic Radiology*, Davidoff and Epstein *The Abnormal Pneumoencephalogram* Gregg, *Coronary Circulation* Singer, *Differential Diagnosis of Chest Diseases* Palmer, *Stomach Disease as Diagnosed by Gastroscopy* Pohle *Radiation Therapy* Goldberger, *Unipolar Lead Electrocardiography* Bridges, *Dietetics for the Clinician* Wesson *Urologic Roentgenology* Kovács *Electrotherapy and Light Therapy* Comroe *Arthritis and Allied Conditions* and many other standard books of practical guidance

LEDERLE LABORATORIES DIV

Booths H 8 10

Lederle Laboratories, Division of American Cyanamid Company feature Aureomycin Literature on the newer findings for the use of this versatile antibiotic and a special annotated bibliography containing over 350 references are being distributed to physicians at the booth This bibliography is the most comprehensive on Aureomycin extant containing references from the introduction of Aureomycin in 1948 to the late spring of this year

WALTER J LEGGE CO
Booth LL 4

THE LIEBEL-FLARSHEIM CO
Booth A 11

The Liebel-Flarsheim Company, manufacturers of electromedical equipment for over thirty-five years, show their latest short-wave diathermy and Bovie electrosurgical apparatus for your examination and demonstration Capable representatives are on hand at all times and hope you will stop by to become acquainted

ELI LILLY AND COMPANY
Booths C-8, 10

An actual research procedure used in the study of established and promising analgesics is featured at the Lilly exhibit You are cordially invited to visit this display and witness the determination of pain thresholds as registered by the rat tail method and also the use of the Hardy-Wolff, Goodell Apparatus Especially trained technicians from the Lilly Research Laboratories are on hand to demonstrate this interesting experiment Lilly medical service representatives from the San Francisco area welcome the opportunity to be of service in every way possible

LINCOLN LABORATORIES, INC
Booth I 21

Lincoln Laboratories, Inc a pioneer in the development of hormone aqueous suspensions, features Aqueous Suspension of Progesterone together with a number of its leading, well-known parenteral medications Literature and professional samples are available.

THE LINDE AIR PRODUCTS CO
Booth N 14

The new R-501 clinical oxygen regulator new L-27 oxygen therapy flowmeter, and new L-26 flowmeter adaptor for industrial regulators, spotlight the Linde Air exhibit Wall outlet valves and cylinder manifolds for oxygen piping systems are also shown as well as small and large cylinders of Linde Oxygen U S P Live displays include units from a typical Linde-designed hospital oxygen piping system

J B LIPPINCOTT COMPANY
Booths B-14, 16

J B Lippincott Company presents an interesting and active exhibit of professional publishing With the "pulse of practice" centering in an advisory editorial board of active clinicians who constantly review the field—current and coming trends in medicine and surgery are known continually On the studied recommendations of these medical leaders, Lippincott Selected Professional Books are undertaken

P LORILLARD CO INC
Booth H 20

The exhibit by the makers of Old Gold Cigarettes is symbolic of the company's manufacturing policy which has been to retain all that is best in traditional methods and combine these with the best that Twentieth Century science affords The booth is manufactured of the newest of plastics, plywood, and illuminated with indirect fluorescent light The central feature is a lighted map showing the extent of Lorillard's manufacturing and sales facilities

LUZIER'S INC
Booth I-5

A complete display of Luzier's Fine Cosmetics and Perfumes may be seen in booth I-5 This exhibit will be of special interest to dermatologists and allergists as well as to the ladies who attend the convention Officials of Luzier's, Inc , are on hand to explain Luzier's Service in the field of allergy

M & R DIETETIC LABS
Booth F 2

Similac Division, M & R Dietetic Laboratories, feature Similac, a well-known food for infants, and Cerevim, a cereal food Representatives at the booth will appreciate the opportunity to discuss the merit and suggested application for both the normal and special feeding case

MACHLETT LABORATORIES INC
Booth N-26

Machlett Laboratories are exhibiting a complete line of rotating anode x-ray tubes which cover the range of power required by all radiographic techniques, thus making this precision type of instrument available to all users of x-ray equipment. A new member of this line—shown for the first time—is the Dynamax "20," a small, lightweight rotating anode tube especially suited for low power x-ray machines

THE MACMILLAN COMPANY
Booth G 18

Medical research assumes an increasingly important role in today's practice David E Green and W Eugene Knox summarize the most recent advances in all fields of research related to medicine in the newly published *Research In Medical Science* New advances in surgery also receive their deserved amount of attention in *The Cerebral Cortex Of Man* by Wilder Penfield and Theodore Rasmussen, as well as in the second edition of the well known Cutler-Zollinger *Atlas Of Surgical Operations*

THE MAICO COMPANY INC
Booth M-11

MALLINCKRODT CHEMICAL WORKS
Booth I 19

Featured by Mallinckrodt for the first time is their new contrast medium, Urokon Sodium, accepted by the Council on Pharmacy and Chemistry Urokon Sodium is recommended for visualization of the kidney ureter and bladder and has proven a satisfactory and safe contrast medium for intravenous urography and retrograde pyelography X-ray films showing the use of the Urokon Sodium are on display for your examination Brochures, literature and reprints are available to the medical profession, and Mallinckrodt representatives will be glad to discuss this product with you In addition to Urokon, the usual oft repeated prescription chemicals together with Council-accepted x-ray diagnostic media are shown

MANHATTAN UNIFORM CO
Booth LL 27

MARCELLE COSMETICS, INC
Booth D 7

Featured at the Marcelle Hypo-Allergenic Cosmetic's exhibit is their Foundation Lotion for Oily Skin This product has been awarded the seal of acceptance of the Committee on Cosmetics of the American Medical Association It is being widely prescribed by those interested in dermatology both as an excellent cosmetic for the acne patient and as a flesh tinted vehicle into which medication can be incorporated For the 17th consecutive year, the representatives of Marcelle Cosmetics will be on hand to welcome you

THE S E MASSENGILL CO
Booth H 21

Based on original work of the Massengill Research Laboratories, this exhibit shows graphically the effect of combining sulfonamides The solubility of the three most commonly used sulfonamides—sulfadiazine, sulfamerazine and sulfamethazine—is compared with the solubility of these drugs in various combinations—all solubilities computed in normal urine at body temperature The effect on solubility of the addition of alkalizing salts, such as sodium citrate, is also demonstrated

F MATTERN MFG CO
Booths F-27 29

Some of the most advanced improvements in modern x-ray equipment are shown by F Mattern Mfg Co —including their Push Button Control and Photo Electronic Timing of X-Ray Exposures Courteous and experienced personnel are on hand to answer your questions

McFEDRIES X-RAY SALES CO
Booth N 53

Many new items are featured by McFedries, including their latest, highly practical and efficient combination radiographic, fluoroscopic x-ray unit This completely counterbalanced screen and tube assembly, when used with either a 50 MA or 100 MA x-ray generator leaves little to be desired. The McFedries Hand Tilt Table likewise presents a modern practical table, convenient to use with any combination of x-ray assemblies An opportunity to serve you is welcomed by the firm

McGRAW HILL BOOK CO INC
Booth B 6 (E½)

Several distinguished new titles are featured here. Especially important are Hicks and Warren's *Introduction To Neuropathology*, Cohn's *Clinical Electroencephalography*, Bridge's *Epilepsy And Convulsive Disorders In Children* Puffer's *Practical Statistics In Health And Medical Work* Thoms' *Training For Childbirth*, and Lemkau's *Mental Hygiene In Public Health* Two hundred other McGraw-Hill books in medicine and allied fields are shown

McKESSON APPLIANCE CO
Booth D 4

DUNCAN C McLINTOCK CO INC
Booth M-27

The focal point of attention in the McLintock display is their Polyestol pain-relieving bandage, a highly elastic transparent plastic bandage which gives off 45 to 50 Gm of methyl salicylate for transcutaneous absorption at a constant rate when in use The bandage may be applied for a total of sixty hours (never more than ten hours at a time) It can be stored between applications without danger of deterioration

McNEIL LABORATORIES INC
Booth F 12

Butisol Sodium, Syndrox Hydrochloride, Liquoid Mer-Diazine and Liquoid and Tablets Metha-Merdiazine are among the new Council-accepted pharmaceutical preparations exhibited by McNeil Laboratories A warm welcome is extended to their many professional friends not only from the United States but from foreign countries to stop by and renew old friendships

MEAD JOHNSON & COMPANY
Booths A 18 C 12 14

New, modern exhibits have been prepared by Mead Johnson & Company for this meeting In their main display booths C-12 and 14, are featured Dextri-Maltose Oleum Percomorphum, Pablum Pabena Olac, Casec, Nutramigen, and other Mead nutritional products In their protein exhibit, booth A-18, you may enjoy a tasty drink of Amigen along with Lonalac and Protenum Members of the Mead Johnson staff welcome your visit to their new exhibits

THE MEDICAL BUREAU
Booth A 3

In booth A-3, Burneice Larson offers the facilities of The Medical Bureau, an organization serving as counselor in problems of medical personnel to medical schools and universities, public health organizations, hospitals and institutions, group clinics, physicians in private practice and industry The records of diplomates of the American Boards qualified to head their departments, younger physicians interested in obtaining training and, also, administrators, executive and supervising nurses scientists laboratory technicians, x-ray technicians, social workers and dietitians are available to those interested in the completion or reorganization of their staffs

MEDICAL FILM GUILD
Booth I-1a

Medical Films That Teach presents a refresher course in fundamental medical problems Each film subject is produced in the manner of a textbook, profusely illustrated, offering information comparable to that found in postgraduate courses as presented at our leading medical schools These films review such subjects as *Arterial Blood Pressure Theory-Physiology Measurement, Allergy-Immunology Diagnosis and Treatment Management of the Failing Heart, Occupational Health Problems, Hypothyroidism Cervicitis, A Clinic on Deafness*, and many others These films are available at no charge to intern groups, hospital staff conferences, limited nurses' groups, and to general medical meetings, and includes projection service at no charge, arranged through grants for postgraduate instruction

MEDICAL MAILING SERVICE INC

Booth M 9

Physicians desiring to mail reprints to their colleagues may secure complete, detailed information including counts and prices for addressing and mailing to any select group of physicians in the United States and Canada Many physicians and pharmaceutical manufacturers use this service Medical Mailing Service has more than twenty years experience in handling this work Exhibitors are also invited to call and discuss their direct mail campaigns

THE MEDICAL PROTECTIVE CO

Booth I 17

The Medical Protective representative in booth I-17 will be glad to explain how his company meets the exacting requirements of adequate liability protection which are peculiar to the professional liability field Thoroughly trained in professional liability underwriting he is entirely familiar with the principles of the reciprocal rights and duties of a doctor and patient and with the circumstances peculiar to that relationship

MEDICAL SPECIALTIES INC

Booth LL 26

THE MENNEN COMPANY

Booth A 13

The Mennen Company exhibit famous Mennen Non-Medicated Baby Oil with Lanolin new, soft Mennen Baby Powder Mennen Castile Baby Soap and Mennen Baby Cream

MERCK & CO INC

Booths F 9 11

The new Golden Anniversary eighth edition of *The Merck Manual* will be on display for physicians' personal inspection at the Merck exhibit Other features of current interest to the physician include informative presentations on Crystalline Vitamin B_{12} the anti-tubercular agents Dihydrostreptomycin Sulfate Streptomycin Calcium Chloride Complex and Para-Aminosalicylic Acid as well as Neo-Antergan an antihistaminic agent characterized by clinically established potency and low toxicity

THE WM S MERRELL CO

Booth E 2

Merrell features Diothane Ointment an improved topical anesthetic of prolonged effectiveness and established clinical safety —together with its companion product Diothane Cream designed for use where a vanishing cream base is preferable Decapryn a low milligram-dosage antihistaminic also is displayed

MICROTONE COMPANY

Booth M 1

E S. MILLER LABS INC

Booth M 25

An exhibit featuring their Council-accepted products has been arranged by E S Miller Laboratories, manufacturers of ethical pharmaceuticals since 1923 Practicing physicians will want to become better acquainted with these noteworthy preparations

MILLS OF MARIN

Booth LL 5

Of special interest to pediatricians will be the unveiling of a new type of baby carrier the MoMper by Mills of Marin Mill Valley California Unlike other carriers with over-the-shoulder suspension the MoMper is a front-carrying garment which distributes the baby s weight primarily across the wearer s back Without exception, mothers who have had the privilege of testing the MoMper are enthusiastic

MINE SAFETY APPLIANCES CO

Booth M 7

Mine Safety Appliances Company exhibits the MSA Pneophore and the MSA Oxygen Therapy Unit The former instrument utilizes intermittent positive pressure for insufflation in cases of embarrassed respiration It has been successfully used as an emergency respirator in poliomyelitis and to combat pulmonary edema in irritant gas inhalation The Oxygen Therapy Unit delivers oxygen at the rate needed by the patient and is especially recommended for the emergency ward recovery room or patient s bedside when oxygen therapy is indicated

J J MONAGHAN CO INC

Booth M 21

A recent news story concerning accomplishments of the Monaghan Portable Respirator is being told by the manufacturer In March 1950 the J J Monaghan Company shipped a respirator at the request of the E C A. to Paris France by air express to enable a young French girl to be flown back to France from England where she had contracted poliomyelitis During the flight the respirator operated on its own self-contained battery a unique feature of the Monaghan Respirator

C V MOSBY COMPANY

Booths A 2 4

At the C V Mosby booth you will find many new and interesting titles Some of the more important full volumes on display are Dodson *Urological Surgery* Douglas-Faulkner, *Obstetrical and Gynecological Pathology* Titus *Atlas of Obstetric Technic* Meakins, *Practice of Medicine* Slocum *Amputations* Cleckley *The Mask of Sanity* Regan *Doctor Patient and the Law* Ischlondsky *Brain and Behavior* Kantor Kasich *Handbook of Digestive Diseases* plus many others

V MUELLER & CO

Booth I 9

In the V Mueller & Company exhibit you will see many of the instruments recently developed for the newer surgical procedures These highlight a large and comprehensive display of fine instruments, special and standard for every field of surgical practice

NAT'L ASSN OF MARGARINE MFGRS

Booth LL 25

For a free copy of *The Role of Fats in Nutrition* prepared to provide a convenient up-to-date source of the more significant information available about fats and published by the Research Committee of the National Association of Margarine Manufacturers stop at booth LL-25 Taste samples of margarine are offered If you have questions about margarine please stop by They will be answered immediately or by letter shortly after the convention adjourns

THE NATIONAL DRUG CO

Booth H 3

Resinat, a newly accepted therapy for peptic ulcer Protinal Powder, a whole protein carbohydrate mixture and Diphtheria, Tetanus and Pertussis Vaccine Combined triple immunization are the featured products at the National Drug exhibit Also on display is National s vast array of Council-accepted biological and pharmaceutical products Representatives in attendance welcome a discussion with physicians on the merits of the products on display

NATIONAL EDUCATION CAMPAIGN A M A

Booth A 28

Literature outlining the advantages of Voluntary Health Insurance over the government's Compulsory plan, and pointing out the dangers of socialized medicine, is being distributed at the booth of the National Education Campaign of the American Medical Association by representatives of the campaign directors Order blanks are available and the literature which is designed for distribution to the general public will be sent without cost to any address

NATIONAL ELEC INSTRUMENT CO INC

Booth C 26

Visitors to National Electric Instrument booth will see interesting proof of lively competitive functioning under our free enterprise system Spread out for examination are some instruments that are well known to the profession. These show signs of the manufacturer s steady pressure upon improvement Other products on display are new and notably interesting They disclose how much consistent enterprise the manufacturer can employ in his development program This exhibit will appeal to the specialist and the general practitioner alike

NATIONAL LIVE STOCK & MEAT BOARD

Booth H 32

THOMAS NELSON & SONS

Booth B 6 (W½)

Thomas Nelson & Sons announce that for the 99th Annual Session of the A M A they plan to lay particular stress on four important books—two of them brand new and two published within the last nine months *Gynecology* (the teachings of John I Brewer) a new gynecologic textbook published in April, 1950 *Clinical Therapeutic Radiology* edited by Dr U V Portmann with 52 contributors, *Monographs On Surgery 1950* a new surgery annual edited by Dr B Noland Carter with three associate editors and seventeen contributors *Atomic Medicine* edited by Captain C F Behrens of the United States Navy In addition all of their bound books published in the past two years and a few of their loose-leaf classics may be seen

THE NESTLÉ CO INC

Booth D 3

For your relaxation The Nestlé Company cordially invites you to enjoy a delicious hot cup of Nescafe And, for your information specially qualified representatives will be glad to answer your questions on any Nestlé s milk products—already well known and used for babies 'round the world New pieces of professional literature are available

THE NEW YORK MEDICAL EXCHANGE

Booth C 38

Patricia Edgerly in booth number C-38 welcomes a discussion with you of opportunities available with group clinics in various specialties assistantships associations medical directorships in industrial and pharmaceutical fields hospital appointments in the fields of pathology radiology anesthesiology etc She has a list of interesting openings as well as the credentials of some fine medical people Stop by and chat with her

NORTH AMERICAN PHILIPS CO INC

Booth N 10

OHIO CHEMICAL & SURGICAL EQUIP CO

Booth C 41

The Ohio-Scanlan A-7000 Major Operating Table *Selectrol* is the item of interest here Convenient "true" head-end control of this new major operating table is concentrated in Ohio s Selectrol Positioner

ORGANON INC

Booth M 6

Heparin the body's natural anticoagulant is the subject about which the Organon exhibit is centered Subcutaneous injection and other new methods of administering Liquaemin the Organon brand of heparin are described Newer concepts of the mechanism of blood coagulation showing sites of heparin action are illustrated together with a machine actually demonstrating the anticoagulant action of heparin on the blood Doca Acetate (desoxycorticosterone acetate) Oranixon (myanesin), and Muracil (methyl thiouracil) other Council-accepted Organon products are also featured

ORTHO PHARMACEUTICAL CORP

Booth H 11

Featured here is the new Ortho Kit a specially designed woven plastic zipper bag containing the essentials for conception control Ortho representatives are on hand to greet you and discuss any questions on Ortho-Gynol Ortho Creme or other Ortho control of conception products

ORTHOPEDIC FRAME COMPANY

Booth LL 21

The Orthopedic Frame Company is demonstrating the useful Stryker Turning Frame—how it simplifies the nursing care of the paraplegic and how it can be used in the home as well as in the hospital Also shown are three new oscillating saws the Stryker Cast Cutter Stryker Autopsy Saw and the Stryker Bone Saw

OXFORD UNIVERSITY PRESS INC

Booth A 8

The Oxford University Press displays a complete library of all its medical publications, both American and import New editions and titles include Fulton, *Physiology Nervous System*, Boyce, *Acute Appendicitis*, Florey, *Antibiotics*, Thannhouser, *Lipidoses*, Rosenbaum, *Clinical Electrocardiography* Thurber, *Evaluation Industrial Disability*, Christian, *Non-Valvular Heart Disease*, Keefer & Anderson, *Penicillin and Streptomycin*, Samuels, *Management Peripheral Arterial Disease*, Movitt, *Digitalis* Barach, *Diabetes* Kayne, *Pulmonary Tuberculosis* Hill, *Operative Surgery*, Fulton, *Frontal Lobotomy*, Miles & Learmonth, *Operative Surgery*, Gunn, *Introduction to Pharmacology* Browning & Mackie, *Textbook Bacteriology*

G H PACKWOOD MFG CO

Booth C 16

Pax-Lano-Sav Heavy Duty Granulated Skin Cleanser, accepted by the Committee *on Cosmetics of the A M A*, is highlighted in this exhibit Special laboratory equipment, perfected after more than three years of development work by Packwood technicians, now continually tests the *cleansing effectiveness* of Pax Heavy Duty as compared to other similar type cleansers The Pax Electronic Soil Detector measures with unusual precision, and without the variability of human sight measurement, the amount of soil remaining on the skin after washing The Pax Suds-O-Meter accurately compares the sudsing ability of *any powdered or granulated skin cleanser* Both machines assure maintenance of the high quality and efficiency of this fine product now so widely used by the largest plants in America

PARAVOX, INC

Booth N 17

Paravox, Inc Manufacturer of Paravox Hearing Aids *and a regular exhibitor* at A M A meetings is again with us at the 99th Annual Session A beautiful plastic display illuminated by neon tubes shows the various component parts of the Paravox Hearing Aids in the *proper sequence* of manufacture and explains how each part finally finds its place in the completed unit

PARKE DAVIS & COMPANY

Booth G 8, 10

A few minutes of your time visiting the P-D exhibit will be well spent Featured is their new antibiotic—Chloromycetin *This antibiotic has been identified chemically* and is the first to be synthesized and produced on a practical basis in pure crystalline *form* The exhibit illustrates its chemical properties, pharmacology, and toxicology, the laboratory spectra for susceptible bacteria, rickettsia, and viruses, as well as graphs and tables relating to *its therapeutic application* Chloromycetin represents an outstanding achievement in medical science by the Parke-Davis Research Laboratories Members of the Parke Davis medical service staff are available for consultation and discussion relating to this new and other well-known medical specialties comprising their list

PARSONS OPTICAL LABS, INC

Booth N 61

Instruments and accessories of particular interest to the ophthalmologist—both diagnostic and surgical—highlight the Parsons exhibit. Contact lenses of all types and purposes, plastic prostheses, and visual aids of all kinds, particularly sub-normal vision devices, *are also shown*

PELTON & CRANE

Booth H 4

PEPSI COLA COMPANY

Booths I 4, 6

PEPSODENT DIV LEVER BROTHERS CO

Booths H 36, 38

Rayve, the new personalized home permanent with exclusive Dial-A-Wave Chart, will certainly interest you—and your wife The individual "Rayve Number" is a personal guide to the correct timing procedure that's best for each individual type of hair and the amount of wave desired Scientifically controlled in every step of manufacture by the famous Pepsodent Laboratories, Rayve's improved cream *cold* waving formula is fast, gentle, and so simple Extensive patch tests have demonstrated Rayve's high quality and its gentle non-sensitizing composition Trained Laboratory personnel are in attendance, eager to give you full details about Rayve *Home Permanent*—accepted by the Committee on Cosmetics of the American Medical Association

MURLE PERRY

Booth M 12

For complete information on Perry colostomy and ileostomy *products visit booth* M-12 Presented is a new model, featuring *advantages never before offered* It is *equally useful as a colostomy appliance*, colostomy protector, colostomy irrigator, or ileostomy bag Courteous attendants will be happy to give you full information *about this new model*, as well as their complete ileostomy appliances

PET MILK COMPANY

Booth E 21

A miniature working model of an evaporated milk plant is exhibited by Pet Milk Company This *exhibit* offers an opportunity to obtain information about the production of Pet Milk, its use in infant feeding, and the time-saving Pet Milk services available to physicians Miniature Pet Milk cans are being given to physicians who visit the Pet Milk booth

PETRA MFG COMPANY

Booth M 28

In addition to their regular line of attractive, protective garments for doctor, *nurse, patient, etc*, Petra Mfg Company—manufacturers of Krestex garments—are featuring their new bootees, especially useful to protect trousers and shoes in orthopedic or urogical work These bootees *made of heavy plastic are designed to* give long, hard wear and to fit over any shoe A tie on top keeps them securely in place

CHAS PFIZER & CO INC

Booth I 2

Graphically presented at booth I-2 are the complex research and development work *necessary in the development of a* new antibiotic Chas Pfizer & Co, Inc, shows in a condensed version the many steps from early screening of soil samples from all parts of the world to the production of *a great new antibiotic*, Terramycin Also included, besides Terramycin, are the many dosage forms of penicillin and streptomycin produced by Pfizer—world's largest source of antibiotics

PHILIP MORRIS & COMPANY

Booths H 2, I 1

Philip Morris and Company present the results of their research on the irritant effects of cigarette smoke An interesting demonstration is being made on smokers *at the exhibit to show the difference in* cigarettes

PICKER X RAY CORP

Booth D 1, E 1

Picker X-Ray Corporation display their new Constellation motor driven 45° Trendelenberg x-ray table It is shown equipped *with an 8" x 10" motor driven serial filmer and features new magnetic locks* The new Pictronic 500 vertical control panel incorporates both electronic and phototiming This control features safety circuits including heat storage safety cutoff The Meteor is a new low-priced combination unit providing for fluoroscopy and radiography in both vertical and horizontal positions

PITMAN MOORE COMPANY

Booth C 5

Important among the Pitman-Moore products featured are a combination Poison Ivy-Poison Oak extract known as Ivoko, *pleasantly* flavored fluid sulfonamides—Magmoid Sulfadiazine and Magmoid Sulfadimer, ultra-violet *irradiated rabies* vaccine, and Immune Serum Globulin for the modification *or* prevention of measles Members of the Pitman-Moore scientific staff are on hand to discuss recent research developments

PRESTERN MFG CORP

Booth LL-10

The Prestern Manufacturing Corp, manufacturers *of a* complete line of x-ray accessories, are showing their products for the first time at a convention on the west coast Featured are a new line of x-ray film dryers, x-ray film illuminators, darkroom lights, film loading bins, film filing cabinets, protective materials, and many other items necessary for the x-ray laboratory

PRIMEX EQUIPMENT COMPANY

Booth N 37

The compact, efficient radiographic equipment shown in the Primex booth will be of special interest to the practitioner who has limited office space Attendants will be pleased to explain the outstanding features

W F PRIOR COMPANY INC

Booth B 18

At Booth B-18, W F Prior Company has on display its world famous loose-leaf references Tice's *Practice of Medicine*, Lewis' *Practice of Surgery*, Brennemann's *Practice of Pediatrics*, and Davis' *Gynecology and Obstetrics* A visit will convince all practitioners that the service rendered by the Prior Company is vast in its comprehensiveness and negligible in its cost

THE PROCTER & GAMBLE CO

Booth G 6

The Procter & Gamble Company offers the *first five of a series of* time-saving leaflet pads for doctors *Instructions for Routine Care of Acne, Instructions for Bathing a Patient in Bed, Instructions for Bathing Your Baby, The Hygiene of Pregnancy*, and *Home Care of the Bedfast Patient* Additional leaflet pads, designed to save the doctor's time in answering the patient's questions *on routine home care, are being* prepared

PROFESSIONAL EQUIPMENT CO

Booths H 31, 33

Professional Equipment Company exhibit their completely new series of Tilt Table X-Ray units Feature of the exhibit is their new 100 MA-100 KV Two-Tube Tilt Table equipped with a double focus 100 MA *tube head and a separate fluoroscopic* tube head, priced at $2,895 F O B Chicago Included in this price is the new Profex-ray all-automatic push-button control, designed for triple-interlocking control of time-KV-MA factors thereby permitting full use of 100 MA techniques with this unit

THE PYRAMID RUBBER CO

Booths N 13 15

How air in the bottle prevents air in the infant's stomach is graphically demonstrated with Evenflo Nursers at booths N-13 and 15 A robot-like device simulates a baby nursing to show the action of the Evenflo patented twin valve *nipple under* actual nursing conditions Also on display are Evenflo Brushless Baby Bottle Cleanser, the new *Evenflo Deluxe Nurser* with Pyrex brand glass, and the new Evenflo Electric Bottle Warmer

QUALITY MATTRESS CO

Booth LL 2

RADIUM CHEMICAL CO INC

Booth C 44

The Radium Chemical Company, Inc exhibit a complete line of radium and radon applicators and accessories for the treatment of cancer and *allied diseases* Representatives in attendance will be pleased to discuss with physicians the use of radium and radon *in their practice*

RALSTON PURINA COMPANY

Booth D 5

RARE GALEN, INC

Booths N 5, 7

At these booths is an interesting display of *Dermolate and Acidolate* detergents of choice when soap is contraindicated Also on display are Methyl Testosterone "Rare" and Testosterone Propionate "Rare"—for effective androgen therapy Courteous medical service representatives in *attendance* will appreciate the opportunity to discuss with you the merits of these and other products of *Rare-Galen*

(Continued on page 128)

WASHINGTON NEWS

The Physically Handicapped

Senate subcommittees now in the process of deciding what to do about two pieces of medical legislation have before them the American Medical Association s official recommendations A M A witnesses urged that

1 Federal assistance to the physically handicapped be expanded, with all of this activity centralized in the Federal Security Agency, which now handles most of it

2 The committee did not approve, in its present form, a bill granting federal assistance to cooperatives and nonprofit associations for establishing medical facilities, because of certain unwise and other unnecessary provisions

Dr Henry H Kessler in a statement filed with a subcommittee of the Senate Committee on Labor and Public Welfare, endorsed the objectives of S 2273, which would increase the authority of the Federal Security Agency in rehabilitation Dr Kessler, a member of the A M A Council on Industrial Health, also is president of two important organizations in this field, the National Council on Rehabilitation and the International Society for the Welfare of Cripples He has been active in rehabilitation of the physically handicapped for 30 years

First Dr Kessler reviewed the history of rehabilitation, stressing the importance of local and private agencies He said the time will come when every progressive community will have its own rehabilitation center, just as it has its own police station, firehouse and hospital At the national level, he praised the Federal Security Agency's Office of Vocational Rehabilitation for the way it has stimulated progressive technical developments for assistance to the handicapped Dr Kessler said the Agency has thoroughly demonstrated its competence to administer all these activities "within the limits of its financial appropriations"

Other bills before the committee would transfer rehabilitation activities to the Labor Department to facilitate job placement (S 3465) or turn them over to a special new agency (S 1066) In opposing the former, Dr Kessler pointed out, "Employment, in the last analysis, is the end product of rehabilitation only in the same sense that employment is the end product of education." He opposed S 1066 because in his opinion "no good purpose could be served" merely by creating a new agency

FSA Administrator Oscar Ewing also testified in favor of S 2273, while Labor Secretary Maurice Tobin argued that the program be turned over to his department The hearings were called after President Truman admitted he could not settle the dispute between Mr Ewing and Mr Tobin Representatives of a number of interested organizations urged creation of a new department of rehabilitation

Cooperative Medical Facilities

Hearings on S 1805, for grants and loans to cooperative medical facilities, provoked a few sharp if not heated exchanges before another Senate Labor and Public Welfare subcommittee. The questioning was done by Senator Forrest Donnell (Republican, Missouri) and Senator Hubert Humphrey (Democrat, Minnesota), sponsor of the bill Dr Walter B Martin, A M A trustee, was official spokesman for the A M A He noted that the bill proposed to help in establishing medical facilities not for use of the public at large, but for exclusive use of members of the organization, and that there was no appeal from the Surgeon General s ruling as to the actual need for such facilities He also pointed out that the state would have no voice in determining need for facilities and that there was no provision for coordinating the new services with other similar services which might be available He reminded the committee that under the bill as written 'federal direction and control over these medical care plans will not merely be a possibility but an actuality"

During a question and answer exchange with Dr Martin Senator Humphrey agreed to change the bill to make the general public eligible for treatment in the clinics to carefully define regulations limiting the power of the FSA administrator and to redefine the phrase "comprehensive medical care." However, he did not agree to bringing the states into the program because, he claimed, state boards were not friendly toward the coops and similar organizations Senator Humphrey had no specific answer to Dr Martin s objection that the bill would set a pattern for national socialized medicine If everything objectionable in this direction were removed from the bill Dr Martin said, there would be nothing left but "a little Hill-Burton Act"

Representing the Minnesota State Medical Association, Dr Reuben F Erickson denounced the bill as unjustified unfair and impractical "Members of cooperative groups are neither indigent, destitute nor necessarily persons in the low income group" he said "A large majority are well able to purchase, at the present time, medical care, hospital care dental care and allied professional services' He observed that physicians and dentists often purchase their equipment by the payment of reasonable amounts over long periods of time under private enterprise arrangements, and he asked why groups which hope to benefit from this bill could not equip themselves by the same procedure.

Another opposition witness was George H Frates, Washington representative of the National Association of Retail Druggists He argued that prescription services to be set up under the bill would result in unfair, tax-free competition to druggists

Senator Humphrey opened the hearings by explaining the bill's objectives and provisions Other favorable witnesses were

Jerry Voorhis executive secretary of the Cooperative Health Federation of America who detailed cooperatives experiences in health problems and their need for clinics medical workshops and other medical facilities less expensive to maintain than hospitals

Dr Dean G Clark president of the federation whose testimony was along the same line Senator Donnell questioned him in detail regarding the personnel structure and objectives of the Cooperative Health Federation

Lloyd Halverson representing the National Grange who said health cooperatives or something like them are basic to any self help solution of rural health problems

Gerald W Heaney representing the Arrowhead Health Center at Duluth Minn Mr Heaney told the success story of a cooperative health plan at Two Harbors Minn He said before the plan started there were two resident physicians in the town (population 5 000) Now there are five four of whom participate in the health plan Mr Heaney told of difficulties in arranging contracts with the two Duluth hospitals He also said that the St. Louis County (Minn) Medical Society to date has not acted on membership applications of any physicians who are participating in either the Duluth or Two Harbors group health plan

National Science Foundation

This Congress has established a National Science Foundation Legislation on this subject has been before the last three Congresses, and one bill reached President Truman's desk in 1947 He vetoed it because he objected to its administrative structure. Almost from the start the American Medical Association has approved the idea of a Science Foundation, and it has worked actively in support of various bills on this subject

The Foundation will promote basic research and education in all sciences, make grants and loans, award scholarships and act as an international clearing house on scientific information It will also take over and maintain a register of scientific personnel, which the U S Employment Service started some years ago It may engage in work related to defense only at the request of the Secretary of Defense, and it may not become involved in atomic energy work without permission of the Atomic Energy Commission.

An unpaid board of twenty-four members, appointed by the President but subject to confirmation by the Senate will administer the Foundation The operating head will be a director, appointed in the same way, but the law provides that the President may not nominate him until the board has made its recommendations In major decisions the director is required to comply with recommendations of the board

Divisions will be established to handle medical research, mathematical, physical and engineering sciences and biologic sciences A fourth division will be concerned with scholarships and fellowships Other divisions and special committees and commissions may be created by the board Only half a million dollars (not yet appropriated) is authorized by the law to finance the Foundation in the first year but a maximum of $15,000,000 has been set for subsequent years

ORGANIZATION SECTION

Official Notes

INVITATION TO TOKIO, JAPAN

April 13, 1950

Dr Ernest E Irons
122 South Michigan Avenue
Chicago 3, Ill

Dear Dr Irons

I have been informed that the American President Lines is considering developing a post American Medical Association Convention trip to the Philippines, and possibly to Japan, for those doctors who may desire to take such a trip

Will you please extend to the members of the American Medical Association an invitation that we would be delighted to have them visit us here during such a trip and will be glad to arrange for visits to medical institutions which may be of interest

The matter of clearances will, of course, be on a tourist basis and provision of billets, etc, will be handled on that basis through the usual channels

Sincerely yours,
CRAWFORD F SAMS,
Brigadier General, Medical Corps
Chief
General Headquarters
Supreme Commander for the Allied Powers
Public Health and Welfare Section
APO 500

State Legislation

Massachusetts

Bills Introduced—S 618 proposes general amendments to the law relating to the organization of nonprofit hospital service corporations H 2575 proposes the enactment of a cash sickness compensation law

Mississippi

Bills Enacted—H 628 was approved April 14, 1950 It provides an appropriation for the construction and equipping of a **four year medical school** to be operated as a part of the University of Mississippi S 456 was approved April 17 1950 It authorizes the state board of health to establish and provide for **health education programs** in the public schools and to employ county health educators for such purpose

New Jersey

Bill Introduced—A 217 has become chapter 88 of the Laws of 1950 It legalizes the filling of prescriptions for **narcotic drugs** written by duly licensed physicians of other states for patients residing in New Jersey

New York

Bills Enacted—A 447 has become chapter 794 of the Laws of 1950 It amends the public health law relating to the uniform **narcotic drug act** by providing that the word 'physician' as used therein shall include osteopaths A 1637 has become chapter 681 of the Laws of 1950 It amends the general municipal law by **indemnifying physicians and dentists** for services rendered in the course of a home care service maintained by a public institution A 2051 has become chapter 587 of the Laws of 1950 It authorizes the creation of a corporation to establish maintain and conduct a hospital in the state for **the treatment of cancer** and allied diseases A 2452 has become chapter 572 of the Laws of 1950 It permits the organization of a corporation to be known as the **National Association for Mental Health, Inc** the purposes of which would be to promote mental health and to work toward the prevention of mental handicap and the improved care and treatment of persons suffering from such handicap A 2890 has become chapter 669 of the Laws of 1950 It provides that if neither the medical examiner nor his assistant in Dutchess County is a pathologist, then the board of supervisors shall appoint an **assistant county medical examiner** whose only qualification for office and duties shall be that of pathologist S 2248 has become chapter 567 of the Laws of 1950 It amends the mental hygiene law by proposing regulations for the licensing of **psychiatric clinics**

Virginia

Bill Enacted.—S 61 has become chapter 569 of the Laws of 1950 It provides certain amendments to the existing law relating to the granting of **medical scholarships.**

Coming Medical Meetings

American Medical Association San Francisco June 26-30. Dr George F Lull 535 North Dearborn St Chicago 10 *Secretary*

Aero Medical Association Chicago *May 29 31* Dr Thomas H Sutherland 214 S State St. Marion Ohio Secretary
American Association for the Surgery of Trauma, Salt Lake City, June *22 24* Dr Charles G Johnston 1512 St Antoine St Detroit 26 Secretary
American Association of Genito-Urinary Surgeons Hershey Penn, Hotel Hershey May *24 26* Dr Norris J Heckel *122 S* Michigan Ave Chicago 3 Secretary
American Association of the History of Medicine, Boston May 21 23 Dr *Benjamin Spector 416 Huntington Ave* Boston 15 Secretary
American Broncho-Esophagological *Association* San Francisco Mark Hopkins Hotel, May 25 26 Dr Edwin N Broyles 1100 N Charles St Baltimore 1 Secretary
American College of Chest Physicians San Francisco June 22 25 Mr *Murray Kornfeld, 500 N* Dearborn St, Chicago 10 Executive Secretary
American College of Radiology San Francisco June *25* Mr William C Stronach 20 N Wacker Drive Chicago *6* Executive Secretary
American Dermatological Association Jasper National Park Alberta Canada, June 18-22 Dr Louis A. Brunsting 102 Second Ave. S W, *Rochester* Minn Secretary
American *Diabetes Association San Francisco Hotel* Whitcomb June 24-25 Dr John A Reed 1 *Nevins St Brooklyn 17,* Secretary
American Geriatrics Society New York *Hotel Commodore June 1 3* Dr Malford W Thewlis 25 Mechanic St Wakefield R I Secretary
American Hearing Society, Chicago, Drake Hotel June 15 17 Mrs *Frances* E Lee *817* Fourteenth St N W Washington 5 D C Secretary
American Heart Association San Francisco *Fairmont Hotel June 22 25* Dr John J Sampson *1775* Broadway, New York 19 Secretary
American Laryngological Association San Francisco May 23 24 Dr *Louis H Clerf 128* S Tenth St Philadelphia 7 Secretary
American Laryngological *Rhinological and Otological Society* San Francisco May 25 27 Dr C Stewart Nash *277 Alexander St Rochester 7* N Y Secretary
American Medical Women's Association Carmel Calif June 20 22 Dr Grace Talbott *909 Hyde* St San Francisco 9 Secretary
American Neurological Association Atlantic City Claridge Hotel June 12 14 Dr H Houston Merritt *710* W *168th* St New York 32 Secretary
American Ophthalmological Society Hot Springs, Va. The Homestead May 31 June 2 Dr Maynard C Wheeler 30 W 59th St New York 19 *Secretary*
American Orthopedic Association Virginia Beach Va May 23 26 Dr C Leslie Mitchell, Henry Ford Hospital Detroit 2 Secretary
American Otological Society San Francisco May 21 22 Dr Gordon D Hoople 1100 E Genesee St Syracuse 10 N Y Secretary
American Proctologic Society Los Angeles July 1 5 Dr W Wendell Green *1838 Parkwood Ave Toledo 2* Ohio Secretary
American Radium Society New York Roosevelt Hotel May 25 26 Dr Hugh F Hare 605 Commonwealth Ave. Boston 15 Secretary
American Society for the Study of Sterility San Francisco Sir Francis Drake Hotel June 24 25 Dr John O Haman, 490 Post St. San Francisco 2 Secretary
American Society of X Ray Technicians Columbus Ohio, Deschler Wallick Hotel May 28 June 2 Genevieve J Eilert R T 16 Fourteenth St Fond du Lac Wis. Executive Secretary
American Urological Association Washington D C Hotel Statler May 29 June 1 Dr Charles H deT Shivers Boardwalk National Arcade Bldg Atlantic City N J Secretary
Association for the Study of Internal Secretions San Francisco June 23 24 Dr Henry H Turner 1200 N Walker St Oklahoma *City 3* Secretary
Conference of Presidents and Other Officers of State Medical Associations San Francisco Palace Hotel June 25 Mr John E Farrell 106 Francis St Providence R I Secretary
Illinois State Medical Society Springfield Illinois State *Armory* May 23 25 Dr Harold M Camp 224 S Main St Monmouth Secretary
Maine Medical Association Poland Spring, June 18 20 Dr Frederick R Carter 142 High St Portland 3 Secretary
Medical Library Association Boston June 19 22 Miss Helen *Hlavac* *209 East 23d* St New York *10* Secretary
Minnesota State Medical Association Duluth, June 12 14 Dr B B Souster 496 Lowry Medical Arts Bldg St Paul 2 Secretary
North Dakota State Medical Association Grand Forks May 27 30 *Dr* O A *Sedlak 702* First Ave S Fargo Secretary
Oklahoma State Medical Association Oklahoma City June 4 7 Dr Lewis J Moorman, 210 Plaza Court Oklahoma City, Secretary
South Dakota State Medical Association Mitchell May 20 23 Dr Roland G Mayer 22½ S Main St. Aberdeen Secretary
Western Association of Industrial Physicians *and* Surgeons San Francisco June *25* Dr Christopher Leggo C & H Sugar Refining Corp Crockett Calif Secretary
Western Branch American Public Health Association, Portland Ore May 30 June 1 Mr Walter S Mangold *University of California* Berkeley Calif Secretary

International Meetings

International Cancer Research Congress, Paris, France, July 17 22 Secretariat 6 Ave Marceau Paris 8 France
International Congress of Ophthalmology London, England July 17 21 Mr Keith Lyle 45 Lincoln's *Inn* Fields, London W C 2 England Secretary
International Congress on Asthma Mont Dore France June 3-4 Secretariat, 59 rue Bonaparte, Paris, France

GOVERNMENT SERVICES

NAVY

TRAINING REASSIGNMENTS

Seven regular medical officers now under instruction at the University of Pennsylvania Graduate School of Medicine, Philadelphia, have been nominated for new duty assignments in continuation of their training under the Navy Graduate Training Program They are

Comdr Vernon W H Campbell to instruction in internal medicine, Naval Hospital St. Albans L. I N Y

Comdr George H Davis, to a residency in radiology Naval Hospital San Diego Calif

Lieut Comdr George H Davis to a residency in radiology Naval Hospital San Diego Calif

Lieut Comdr Richard E Kelley to a residency in dermatology and syphilology Naval Hospital Philadelphia

Lieut. Comdr William C. Livingood to a residency in otolaryngology Naval Hospital Philadelphia

Lieut. Comdr James H Lockwood to a residency in dermatology and syphilology Naval Hospital Philadelphia.

Lieut Comdr Louis E Tebow to a residency in surgery Naval Hospital, National Naval Medical Center Bethesda, Md.

Lieut Joseph S Burkle, to a residency in internal medicine, Naval Hospital, Philadelphia.

CAPTAIN ASTON RETIRES

Capt Melville J Aston (MC), commanding officer of the Naval Medical School, Bethesda, Md., retired on May 1 after more than 33 years of active duty in the Navy During World War I he served aboard the *U S S North Dakota Black Hawk* and *Baltimore* In the later peace years he also saw duty aboard the *U S S Amphion, Shawmut, Chaumont, Arkansas* and *New York* After the outbreak of World War II, Captain Aston was assigned to the *U S S Solace* as senior medical officer for which service he received a letter of commendation from Admiral C W Nimitz (USN), for handling casualties of the attack on Pearl Harbor He also received the Legion of Merit with Combat Distinguishing Device for service in waters frequented by Japanese forces, from December 1941 to August 1943 Captain and Mrs Aston plan a trip to Europe this summer and then will live in Philadelphia, where he will engage in medical activities

PERSONAL

Capt. F W Farrar (MC) will relieve Capt. J L Schwartz (MC), as director of the Publications Division, Bureau of Medicine and Surgery, and as editor of the *United States Armed Forces Medical Journal* Captain Schwartz, the first editor in chief of the journal will be transferred to the Office of Naval Officer Procurement, Los Angeles Captain Farrar will continue to edit the *Medical News Letter* in addition to the duties of his new assignment

Comdr W J Dougherty (MC), head of the Communicable Disease Control Section of the Preventive Medicine Division, is being assigned to the staff of the Deputy Commander, Military Sea Transport Service, Atlantic, in Brooklyn He will be relieved by Comdr Robert E Rock (MC), previously attached to the Navy Unit, Government of Guam, as director of public health.

Capt. H K. Sessions (MC), deputy director of the Preventive Medicine Division, Bureau of Medicine and Surgery, has been assigned to the Medical Department of the Naval Training Center, San Diego, Calif, for duty Capt. Frank R. Philbrook (MC), now assigned to the Research and Development Board of the Navy Department, will assume Captain Sessions' duties as deputy director

Capt LeRoy A Wylie (USNR MC) Director of the Reserve Division in the Bureau of Medicine and Surgery was placed on the Retired List May 1, having reached the statutory retirement age He plans to return with his wife to St. Petersburg Fla.

VETERANS ADMINISTRATION

"THE GREATEST HOSPITAL-BUILDING PROGRAM IN ALL HISTORY"

The Veterans Administration announces that it will climax 27 years of hospital construction at the close of this calendar year with the greatest hospital-building program in all history going into its final stages According to the administration s estimates, by the end of 1950 all but three of the 67 new hospitals in the program will have been completed or will be in the process of construction The VA Technical Service has been turning out plans and specifications at the rate of practically one hospital a month, and the hospitals of the entire program are being completed at virtually the same speed. Plans and specifications for 13 of the last 14 hospitals yet to be placed under contract will have been completed this year and a total of 26 of the 64 hospitals will have been opened to receive patients

VA first entered the hospital construction field in 1923 The current program consisting of 82 projects includes new hospitals, additions to certain existing hospitals and conversion of certain existing hospitals for the care of patients from the type cared for in those hospitals in the past. Forty-one of these projects are being accomplished by plans and specifications as prepared by the personnel of VA Technical Service and one by an architectural firm under the direction of Veterans Administration

Of the total number of hospitals now being operated by VA, 95 either are new hospitals on new sites or include major hospital additions at existing hospitals Plans and specifications for all 95 projects were prepared by the Technical Service. Even in that portion of the 1947 program assigned to the Corps of Engineers for design by outside architects the criteria governing the design of these hospitals was prepared by VA So far as is known, VA is the only government agency that is self contained to the extent of preparing all plans and specifications for all its projects

MISCELLANEOUS

RESEARCH IN PHYSICAL SCIENCES

The U S Atomic Energy Commission awarded 12 new contracts in physical research totaling $1,345,660 during the first three months of 1950 The new contracts were awarded to 12 different institutions in 10 states, the District of Columbia and the Territory of Puerto Rico In the same period the AEC also renewed an existing contract The award of the new contracts brought to 67 the number of unclassified research projects in the physical sciences supported by the AEC at universities and industrial laboratories The AEC also supports 60 additional unclassified physical research projects jointly with the Office of Naval Research The largest contract awarded during the three month period was for $1,250 000 for the design construction and operation for three years of a one billion volt electron synchrotron at the California Institute of Technology

The new contracts were awarded under the AEC policy to assist the research programs of universities and other independent research institutions in certain fields of science related to atomic energy

Information on how formal proposals for AEC support of research projects in the physical sciences should be submitted may be obtained from the Division of Research, U S Atomic Energy Commission Washington 25 D C

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest such as relate to society activities new hospitals education and public health Programs should be received at least two weeks before the date of meeting)

ALABAMA

New Hospital in Mobile —The new $585,000 Blessed Martin De Porres Hospital for Negro patients has been opened in Mobile Built on a 2½ acre tract purchased from the city by the Catholic Diocese of Mobile, it has 35 beds but is so planned that it may be expanded to 100 bed capacity The hospital was built under the Federal Hospital Construction Act and has 18 beds for general patients, 12 for maternity cases and 5 for children in the three 4 bed wards, eight semiprivate rooms, two private rooms and the 5 bed pediatric section

CALIFORNIA

Eye Research Facilities Expanded —An $18,000 extension of the research laboratories of the Division of Ophthalmology at the University of California Medical School, San Francisco, has been completed The extension provides three new research laboratories Construction was financed by private patients treated by members of the staff of the division One laboratory will be used in research on uveitis and a second in research on virus diseases of the eye, the third laboratory will be for studies of radiation effects on the function of the eye

Institute on Medicolegal Problems —The Medical School and the Law School University of California at Los Angeles, University Extension, will present a three day Institute on Medicolegal Problems on the campus of the university, June 19-21 The course is offered primarily to doctors and lawyers but is open to all interested persons Registration is $10 The program includes the following visiting speakers

Richard Ford Boston Medicolegal Investigation of Sudden Death
Alan R Moritz, Cleveland The Medicolegal Autopsy Crime Patterns
Rutherford B H Gradwohl, St Louis, Should the Coroner System Be Continued?

The general chairman of the congress is Dr Louis J Regan Los Angeles

DELAWARE

Anniversary Program at duPont Institute —The following scientific program has been planned for the tenth anniversary celebration of the Alfred I duPont Institute of the Nemours Foundation at Rockland Road, Wilmington, June 17

Alfred R. Shands Jr , Wilmington, Ten Years of the Care and Treatment of Crippled Children
Frank H Krusen, Rochester Minn , Physical Medicine in Europe with Reference to the Crippled Child
Miss Winifred C Kahmann Indianapolis Ind , Occupational Therapy in a Crippled Children s Hospital
Mr Lawrence J Link Chicago, Education of the Crippled Child
Lee E Farr, Upton Long Island N Y Research in a Crippled Children's Hospital A Report on Ten Years Experience at the Alfred I duPont Institute
Mrs William G Hamm Atlanta, Ga , Place of the Parents in the Care of the Handicapped Child
Harold Westlake Ph D Chicago, Speech Problems in the Handicapped Child
Herbert K Cooper, Lancaster Pa , Organization of a Model Cleft Palate Clinic with Case Presentations
Winthrop M Phelps Baltimore, Md , Cerebral Palsy A Cause of Crippling in Childhood
Leslie B Hohman Durham N C , Emotional Aspects of Crippling in Childhood

ILLINOIS

Hospital News —About 8,000 persons attended the dedication ceremonies of the 50 bed Clay County Hospital in Flora March 12 to see the completion of the project that they had begun seven years ago The hospital was built under the state's hospital construction program at a cost of about $915,000

Tuberculosis Declines in Illinois —A special report by the state Division of Vital Statistics shows that seven Illinois counties reported no deaths from tuberculosis in 1948 During the same year sixteen counties reported only one death each from this disease Putnam County reported no tuberculosis deaths during 1946, 1947 and 1948, Schuyler County reported none in both 1947 and 1948 Other counties reporting no deaths from tuberculosis in 1948 are Calhoun, Edwards, Hamilton, Jersey and Wabash The report traced tuberculosis mortality from 1945 to 1948 Although 3,159 persons in the state died from tuberculosis in 1945, the 1948 figure dropped to 2,657 Less than 300 of the reported deaths were among persons under 25

Nutrition Workshop —The third Annual Nutrition Workshop for persons interested in community nutrition, sponsored by the Illinois State Nutrition Committee and the College of Agriculture, University of Illinois, will be held on the campus in Urbana, June 19-23 Further information may be obtained from Grace B Armstrong Extension Service, University of Illinois, Urbana, or Blanch Lenning, Illinois Public Aid Commission, 160 N LaSalle

Chicago

City Opens New Heart Clinic —The Chicago Health Department has established a new clinic at La Rabida Sanitarium for the early detection of rheumatic heart disease in children to supplement the work of the sanitarium The clinic will offer complete laboratory services, roentgen ray, electrocardiograph and other aids It will accept referrals by private physicians of persons up to 21 years of age. A complete clinical report will be given to the physician

Personals —Dr Alfred A Schiller of the University of Illinois College of Medicine has been awarded $500 for travel by the Federation of American Societies for Experimental Biology The funds will be used for the presentation of a paper before the Eighteenth International Physiological Congress at Copenhagen, Denmark, August 15-18 The paper is entitled "Effects of a Vitamin P Flavanoid and Ascorbic Acid on the Cutaneous Circulation Determined by a New Quantitative Method '——Dr James W J Carpender, Chicago has been named as the official representative of the University of Chicago to the International Congress of Radiology, which will be held in London July 23-30 Dr Carpender will also visit the larger radium and x-ray centers in England, Paris and the Scandinavian countries——Dr Helmut P G Seckel, assistant professor of pediatrics at the university will be at the University of Frankfurt, Germany, from April to October In July he will give a paper at the Sixth International Congress of Pediatrics to be held at Zurich

Faculty Promotions —Dr Robert M Kark, clinical associate professor, has been promoted to professor of medicine at the University of Illinois, effective July 1 Dr Kark will resign as chief of clinical investigation at the Army Medical Nutrition Laboratory, Chicago During the war he was a member of a joint United States and Canadian research team which was responsible for improving army rations He also served as consultant in medical research to the Canadian army and as head of a medical research unit for the Allied land forces in Southeast Asia Born at Capetown South Africa, Dr. Kark received his advanced education from the University of Capetown and from Guy's Hospital Medical School of the University of London Prior to his appointment at the university, he served as a Rockefeller Traveling Fellow at the Thorndike Memorial Laboratory of the Boston City Hospital and the Harvard Medical School——Dr Earl W Cauldwell, a research associate in the department of pathology at the University of Illinois College of Medicine, has been promoted to assistant professor effective July 1 Dr Cauldwell has served as a member of the faculty of the university since September 1948. He is concerned primarily at present with the study of betatron radiation effects on cartilage, bone and bone marrow The study has been made possible by a grant from the U S Public Health Service

New Research Hospital —Ground was broken May 13 for the $14 000 000 Veterans Administration Research Hospital, which will become a part of the Northwestern University Medical Center The 17 story structure will occupy the entire block bounded by Huron Street, Fairbanks Court, Erie Street and McClurg Court Construction work is expected to require about 20 months Dr Richard H Young, dean of the Northwestern Medical School, presided Addresses were made by Mr Carl R Gray Jr , administrator of veterans affairs, and Dr J Roscoe Miller, president of Northwestern University There will be accommodations for 90 nurses and 50 resident interns and research workers The Veterans Administration and Northwestern's medical school will work together in operating the hospital A committee consisting of Dr Young and a number of the school's department heads will serve as consultants, assisting in the medical supervision and staffing of the hospital Equipment to be installed in the new hospital includes portable television cameras for three operating rooms with outlets to classrooms, lecture rooms and the assembly room All necessary television conduits are to be installed in the structure so the hospital will be ready to use color television for medical training X-ray equipment will occupy the entire second floor A betatron for research work and treatment of malignant diseases will be housed in the second sub-basement Research facilities will occupy two entire floors

INDIANA

District Medical Society Meeting—The annual meeting of the Third District Medical Society was held at the Colgate-Palmolive-Peet Co building in Jeffersonville May 17 After a tour through the plant, Dr K Armand Fischer, Louisville Ky, presented a paper on 'The Evaluation of Industrial Accidents" and Dr Winston U Rutledge Louisville, spoke on "Industrial Allergies ' The speaker of the evening was Dr Elmer L Henderson Louisville, President-Elect of the American Medical Association

KANSAS

Dr Lemoine to Head Eye Department—Dr Albert N Lemoine Jr member of the faculty since 1947 has been appointed chairman of the department of ophthalmology at Kansas University School of Medicine, Kansas City He succeeds Dr John A Billingsley, who is retiring because of illness but will remain active in the department. Dr Lemoine received his medical degree from Washington University School of Medicine St Louis in 1943 He was a teaching and resident fellow in ophthalmology at Harvard Medical School Boston Last summer he was a member of the Alaska Medical Mission, conducted jointly by the American Medical Association, U S Department of the Interior and the Army Air Forces

KENTUCKY

District Medical Society Meetings—Physicians from the 12 counties composing the Third Councilor District of the Kentucky State Medical Association attended a meeting held at the Helm Hotel Bowling Green April 11 Guest speakers from Nashville Tenn were Dr Harrison J Shull, whose subject was 'Diagnostic Considerations of the Jaundiced Patient" and Dr J Allen Kennedy, who spoke on "Cardiac Emergencies ——The spring meeting of the Eastern Kentucky Medical Association comprising the Ninth Councilor District of the Kentucky State Medical Association was held May 11 at the Brown Hotel, Prestonsburg Papers were presented by two Louisville physicians Dr Charles M Edelen spoke on "Surgery of the gallbladder" and Dr Sam A Overstreet on 'Massive Hemorrhage of the Intestinal Tract." Other guest speakers were Drs Francis A. Scott and Ray M Bobbitt, both of Huntington W Va, who discussed "Diagnosis and Treatment of Backaches" and "Practical Points in the Management of Problems of the Female Bladder" respectively——On May 11 a joint dinner meeting of the Second Councilor District Medical Association and the Second District Woman's Auxiliary was held at the Soaper Hotel Henderson Dr George W Pedigo Jr Louisville, delivered an address on "Recent Advances in Management of Congestive Heart Diseases"

MICHIGAN

Hospital Clinic Day—Bon Secours Hospital at Grosse Pointe will hold its annual clinic day June 6 when members of its staff will present an all day and evening program. Chairmen of the three sessions will be Drs James H Blain Jr, Hugh Stalker and Donald G Ross

McGraw Lectureship—The Detroit Surgical Association has established an annual lectureship in honor of Dr Theodore Andrews McGraw, founder and first professor of surgery at the Detroit College of Medicine An appropriate medal will be presented to each lecturer Dr Frederick A Coller, professor of surgery at the University of Michigan Medical School, Ann Arbor gave the first lecture May 16

MINNESOTA

Poliomyelitis Planning Committee—The State Board of Health has formed a statewide planning committee to coordinate the functioning of state and local agencies to deal with problems that may arise in connection with poliomyelitis in Minnesota Dr Gaylord W Anderson, director school of public Health, University of Minnesota, Minneapolis, is chairman of the committee

Tilderquist Memorial Library—The library of the St Louis County Medical Society will be incorporated as the David L Tilderquist Memorial Library in honor of the Duluth ophthalmologist and otolaryngologist, the library's "best friend and most avid patron," who died September 26, 1948 The memorial corporation will be separate from the medical society At present the library has nearly 3,000 bound volumes and receives 105 weekly, monthly and quarterly periodicals on medicine

MISSOURI

Institute on Medical Care—A special Institute on Social Aspects of Medical Care will be offered by the Saint Louis University School of Social Science in the summer session, June 20 through July 7 The institute, which carries two hours of academic credit, is planned particularly for members of religious communities engaged in hospital and clinical administration or social service in a clinical setting Included in the curriculum will be study of the hospital as a social agency in a community, means of understanding and meeting the social needs of people seeking medical care and the responsibility of hospitals in providing total medical care

MONTANA

School Health Conference—On April 15 Dr Frank L McPhail, vice president of the Montana State Medical Association presided at a special meeting of committee chairmen, representatives of each of the component societies and representatives of the Woman's Auxiliary, called to discuss the advisability of conducting a Conference on Physicians and Schools It is planned to conduct such a conference in Helena on June 20 Invitations will be issued to all physicians dentists, local health planning committees, boards of education, departments of health and all other agencies interested in the health of the community The purpose of the conference will be to outline basic principles for a school health program, to stimulate joint action of all interested agencies to develop sound school health services and to agree on methods of improving and extending such services

NEW YORK

Community Nutrition Institute—Syracuse University and the New York State Department of Health will jointly direct the fourth Community Nutrition Institute at Syracuse University June 10 to July 1 It is an in-service program in public health nutrition planned for physicians community nutritionists clinical dietitians, public health nurses nutrition instructors, health educators and other interested personnel Two hours' credit toward an advanced degree is available to qualified students *Physicians appearing on the program include*

Wilhelm C Hueper Bethesda Md *Degenerative Vascular Diseases of the Adult.*
Frank H Bethell Ann Arbor Mich Review of the Etiology and Treatment of Anemias
Winslow T Tompkins Philadelphia Nutrition in Pregnancy
G Arnold Cronk Syracuse Fatigue Problems Among College Students
Brunhilde Bruch New York Emotional Factors Affecting the Nutrition of the Child and the Adolescent

A symposium on Opportunities for Nutrition Teaching in Clinics will be held Friday morning the participants being Dr Louis J Hackett Jr, Albany, Miss Catherine Leamy, Washington D C Miss Esther Flemming and Miss Harriet Stevens and Mrs Dorothy Goldman Syracuse On June 26 Motivation in Community Nutrition will be discussed by Arthur W Combs, Ph D., Syracuse, Dr Iago Galdston, New York and Mary E Spenser, Ph D Inquiries should be directed to Dr Ann Bourquin College of Home Economics Syracuse University, Syracuse 10 At the banquet Wednesday at 7 p m Dr Paul R. Cannon, Chicago will speak on "The Interrelation of Theory and Practice in the Development of Knowledge of Protein Nutrition" The approximate cost of $100 for the two week institute includes board, room and all fees except a $5 matriculation fee for those desiring graduate credit

New York City

Academy of Sciences Building—The new building of the New York Academy of Sciences at 2 East Sixty-Third Street was opened April 11 Henceforth all meetings and activities of the academy will be conducted at the new address

Testimonial Dinner—The Board of Directors and Officers of the Warschauer Haym Salomon Home for the Aged, New York, honored Dr Max J Schroeder at a testimonial dinner on April 30 in recognition of his devotion to the cause of healing and alleviation of suffering and in appreciation of his untiring efforts on behalf of the sick and feeble old men and women, as medical director of the home for many years

Institute on Treatment of Atomic Injuries—New York Medical College, Flower and Fifth Avenue Hospitals announced plans April 22 for an institute on the treatment of atomic injuries and the organization necessary for medical disaster relief to be held at the school June 5 Seniors at the school will attend the institute and in addition, space will be available for 200 practicing physicians Those interested in enrolling should apply for reservations to Dr J A Werner Hetrick, dean, New York Medical College Flower and Fifth Avenue Hospitals Fifth Avenue and 106th Street No fee will be charged.

NORTH CAROLINA

Personal—Marjorie A. Swanson, Ph D, assistant professor of biochemistry at Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, has received a travel award of $500 from the Federation of American Societies for Experimental Biology to attend the eighteenth International Congress of Physiology in Copenhagen in August. She will present a paper on "Phosphotases of the Liver"

Cerebral Palsy Hospital—The North Carolina Cerebral Palsy Hospital near Duke University in Durham was dedicated March 31 The hospital, built at a cost of $527,000, will care for mentally normal children under 16 years of age who are afflicted with cerebral palsy, regardless of their ability to pay Gov W Kerr Scott and Mr Lawrence Linck, executive director of the National Society for Crippled Children and Adults, Chicago, spoke at the ceremonies Dr. Lennox D Baker, medical director of the school of physical therapy at Duke University, is the medical director

PENNSYLVANIA

Tuberculosis Society Meeting—The annual conference of the Pennsylvania Tuberculosis and Health Society will be held at the Abraham Lincoln Hotel in Reading May 23-26 There will be a workshop to consider methods for publicizing and interpreting the public health survey made recently in Pennsylvania *The Pennsylvania Conference of Tuberculosis Secretaries will be held Wednesday afternoon* The Medical Session of the Pennsylvania Trudeau Society will meet Thursday *morning* Visiting speakers include

Kirby S Howlett Jr Shelton, Conn Place of Chemotherapy in the Treatment of Tuberculosis
Valcoulon L Ellicot Rockville Md What a Local Health Unit Can Mean to You
Norman M Locke, Ph D Federal Security Agency Washington, D C, Place of the Merit System in the Public Health Agency
H Stuart Willis McCain N C Medical Research in Tuberculosis

Philadelphia

Dr White to Speak on Diabetes—The annual meeting of the Undergraduate Research Society of Hahnemann Medical College will be held at 2 p m May *24* in Klahr Auditorium Original student papers will be presented Dr Priscilla White of Boston will speak on "Juvenile Diabetes" at *5 p m*

Postgraduate Seminar—The Third Annual Postgraduate Seminar sponsored by the Hahnemann Medical College Alumni Association, will be held June 13-14 at the college The program will include seminar and panel discussions One should make registrations in advance by writing to Lees M Schadel Jr, M D, General Chairman, at the Alumni Office at the college

Appoint Four Department Heads—Hahnemann Medical College has appointed Dr Charles M Thompson as professor and head of the department of gastroenterology, succeeding Dr Harry M Eberhard, retired Dr Thompson, a graduate of the Hahnemann Medical College (1931), has been clinical professor of medicine at the college Dr J Stauffer Lehman has been made professor and head of the department of radiology succeeding Dr Jacob W Frank, retired Dr Lehman has been a clinical professor of roentgenology and associate professor of oncology at the medical college Dr Joseph E Imbriglia is the new head of the department of clinical pathology with the title of professor He is a graduate of Temple University School of Medicine, Philadelphia (1938) Dr Charles H Hollis has been named professor and head of the department of otolaryngology, succeeding Dr Joseph V F Clay, retired Dr Hollis has been an instructor in pediatrics at Tufts College Medical School, Boston, and assistant physician at the Boston Dispensary He is a graduate of the Tufts College Medical School (1940)

Pittsburgh

Appoint Medical Center Coordinator—Dr Glidden L Brooks, Philadelphia, has been appointed as co-ordinator of the Medical Center hospitals and clinics and professor of hospital administration at the University of Pittsburgh, effective June 1 In addition to co-ordinating the services of the medical center hospitals Dr Brooks will be responsible for developing the courses in hospital administration in the Graduate School of Public Health After graduation from the University of Nebraska in 1933 Dr Brooks received his medical degree from Harvard Medical School, Boston, in 1937 He studied at Children's Hospital in Boston for five years and served as instructor in pediatrics at Harvard. He was in military service between 1942 and 1946, engaged in a variety of public health administrative activities Between 1946 and 1949 he was executive director at the Central Maine General Hospital, Lewiston. His most recent appointment has been as associate *director* of the American Academy of Pediatrics' Committee for the Improvement of Child Health and as associate in pediatrics at the University of Pennsylvania School of Medicine Dr. Brooks was certified by the American Board of Pediatrics in 1945

TEXAS

State Sanatorium Personnel Changes—Dr Howard E Smith, director of the Division of Tuberculosis of the Texas State Department of Health at Austin, has been appointed medical director and coordinator of the State Tuberculosis Sanatorium, at Sanatorium, effective April 1 Dr Joseph B McKnight retired as superintendent of the sanatorium after serving as executive officer of the institution for more than 36 years He is succeeded by Dr Rodger G Smyth, assistant superintendent The name of the state sanatorium was changed to McKnight State Sanatorium in March in honor of Dr McKnight.

VIRGINIA

Honor Dr Sanger on Twenty-Fifth Anniversary—Dr William T Sanger, president of the Medical College of Virginia, Richmond, was honored at a program April 27 at the college on the occasion of his twenty-fifth year as president. Climaxing a program of tributes Dr Sanger was given a new car by the faculty, students and personnel of the college and presented a silver bowl by the college's Board of Visitors Among those present were Governor John Stewart Battle of Virginia; Mayor W Stirling King of Richmond, Dr Lonsdale J Roper, commissioner of the Virginia State Health Department, George M Modlin, LL D, president of the University of Richmond, Dr. Harry L Claud, Washington, D C, an alumnus, Dean Harvey B Haag of the college's school of medicine, and Wyndham B Blanton Jr, president of the student body of the college Dr Sanger succeeded Dr Stuart M McGuire as *president of the college on May 24, 1925*

WYOMING

Cancer Seminar—A one day cancer seminar will be held May 21 in the Crystal Room of the Gladstone Hotel, Casper, for all members of the Wyoming state medical and dental societies The meeting will convene at 9 a m with movies and the following speakers Dr. George E Cartwright, assistant professor of medicine at University of Utah Medical School, Salt Lake City, Drs Henry Swan, II, associate professor of surgery, Henry Mason Morfit, assistant professor of oncology, and N Paul Isbell, assistant professor in obstetrics and gynecology at the University of Colorado School of Medicine, Denver

GENERAL

Life Insurance Medical Meeting—The 1950 annual meeting of the Medical Section of the American Life Convention is to be held June 15-17 at the Greenbrier, White Sulphur Springs, W Va Dr Ennion S Williams, Richmond, medical director, Life Insurance Company of Virginia, is chairman of the section

Dr Phillipson Awarded Medal—At the annual meeting of the American Social Hygiene Association in New York, Major Gen Irving J Phillipson, retired, was awarded the William Freeman Snow Award for Distinguished Service to Humanity The award was established in 1937 Dr Phillipson is an honorary vice president of the American Hygiene Society Clubs

American Broncho-Esophagological Association.—This association will meet at the Mark Hopkins Hotel, San Francisco, May 25-26, under the presidency of Dr LeRoy A Schall, Boston Papers being read by invitation include

Arthur L. Bloomfield, San Francisco *Indications for Bronchoscopy* and Esophagoscopy from the Standpoint of the Internist
Walter B Hoover Boston, Obstruction of the Lower Esophagus—So-Called Cardiospasm

International Pathology Congress—The International Congress of Clinical Pathology will meet in London July 16-20, 1951 Members of the American Society of Clinical Pathologists will receive notice of the congress through a preliminary brochure to be sent to them. Other interested persons may receive this brochure by requesting *it from the American Society* of Clinical Pathologists, *1040-1232* West Michigan Street, Indianapolis 7, after July 15

Meeting on Cleft Palate Rehabilitation—The American Association for Cleft Palate Rehabilitation held its annual meeting in Chicago April 28-29 with headquarters at the LaSalle Hotel. The program included symposiums on Programming Cleft Palate Rehabilitation on Local, State and National

Levels and Clinical Management of the Young Cleft Palate Child clinical demonstrations and exhibits and technical and professional papers on maxillo-facial surgery, prosthodontia, speech pathology and therapy, psychology and pediatrics

Border Health Program—More than 200 delegates met April 12-14 in Chihuahua, Chihuahua, México, for the annual United States-Mexico Border Public Health Association meeting Eighteen resolutions pertaining to disease control and sanitation measures were adopted at the sessions Water studies, communicable disease control, venereal disease and the four cases of human plague in New Mexico last year were among the subjects discussed Dr Wilton L Halverson San Francisco, director of public health for California, was named president-elect of the association

Genitourinary Surgeons Meeting—The American Association of Genito-Urinary Surgeons will hold its annual meeting at the Hotel Hershey in Hershey, Pa, May 24-26 under the presidency of Dr John A C Colston, Baltimore. Among the papers to be presented are "Present Concepts and Future Prospects of Precision Urology," 'Ureteroenterostomy" and 'The Steroids and Their Relationship to Medicine Problems." There will be two symposiums, one on retropubic prostatectomy and the other on hydronephrosis The Keyes Memorial Medal will be presented to Dr Herman L. Kretschmer, Chicago

Society Elections—At the eighteenth annual meeting of the Harvey Cushing Society held at Colorado Springs Colo, April 15-17 the following officers were elected Dr W Edward Chamberlain, Philadelphia, president Dr Harry Wilkins Oklahoma City, vice president, and Dr Louise C Eisenhardt, New Haven, Conn. secretary-treasurer——At a recent meeting of the Society of American Bacteriologists the following officers were selected Barnett Cohen, Ph D., Baltimore, president, Dr Walter J Nungester, Ann Arbor Mich, vice president, and John E. Blair Ph D, Leonia, N J secretary-treasurer

American Ophthalmological Society—This society will hold its annual meeting at the Homestead Hot Springs Va., May 31 to June 2, under the presidency of Dr Parker Heath, Boston The invention of the ophthalmoscope 100 years ago by Dr Herman Ludwig Ferdinand von Helmholtz will be commemorated by the presentation of three papers by Drs Burton Chance, Philadelphia Ruell A Sloan Washington, D C., and Arthur J Bedell Albany, N Y There will be an exhibit of ophthalmoscopes, manuscripts, books and other material related to Helmholtz and his discovery, covering the period 1850-1865 Seventeen scientific papers will be presented

Medical Librarians' Meeting—The Medical Library Association will hold its 1950 convention June 19-22 at the Hotel Kenmore, Boston The Boston Medical Library will be host An address on 'Medical Libraries and Librarianship in Great Britain" by Mr William J Bishop, librarian of the Wellcome Historical Medical Library, London will be one of the outstanding lectures at the meeting The 'symposium on historical source material in medical libraries" and conducted visits to the libraries of Harvard Massachusetts Institute of Technology, Massachusetts College of Pharmacy and the Massachusetts General Hospital will be of special interest to all medical and scientific librarians

Inter-American Congress on Brucellosis—The Third Inter-American Congress on Brucellosis will be held in Washington D C, November 6-10 The congress is being sponsored by the Pan American Sanitary Bureau the Inter-American Committee on Brucellosis and the Committee on the Public Health Aspects of Brucellosis of the National Research Council The latter committee on brucellosis of the National Research Council has been designated as the American Committee on Brucellosis and is responsible for the scientific program Dr Wesley W Spink professor of medicine at the University of Minnesota Medical School Minneapolis, is chairman of the committee.

Meeting on Physical and Mental Rehabilitation—The annual meeting of the Association for Physical and Mental Rehabilitation will be held at the Hotel Peabody, Memphis, Tenn., May 23-27, under the presidency of Mr Raymond W Swanson, Falls Church, Va. Physicians presenting papers at the general sessions include

Alvin B C. Knudson Washington D C Teaming for Rehabilitation
Marcus J Stewart Memphis, Remedial Exercises and Rehabilitation in Back Injuries
John E. Davis Washington D C Present Educational Challenge and Opportunity in Corrective Therapy
Alan Gregg New York, Role of Activity in Therapy
Robert L. Bennett Warm Springs Ga., Functional Bracing
Edward D Greenwood Topeka Kan Corrective Therapy as It Relates to the Neuropsychiatric Patient
Ben L. Boynton, Houston Texas, Medical Aspects of the Neurologic Patient

Dr Wolbach Receives Ricketts Medal—The Howard Taylor Ricketts Medal was awarded Dr S Burt Wolbach, Harvard University professor emeritus of pathology May 8 at the Albert Merrit Billings Hospital, Chicago The Ricketts medal was endowed last year by Mrs H T Ricketts Dr Ludvig Hektoen, professor emeritus of pathology of the University of Chicago and Dr Russell M Wilder, head of the division of medicine at Mayo Clinics, were the first recipients Dr Wolbach made some of the earliest studies on the pathology of Rocky Mountain spotted fever and typhus He is also known for his contributions to the knowledge of vitamin A and C deficiency diseases In 1920 he served on the League of Red Cross Society's Research Committee on Typhus Fever to Poland After the medal presentation, Dr Wolbach spoke on rickettsial diseases

Czechoslovakia Withdraws from WHO—On April 21 Czechoslovakia notified the World Health Organization that "it no longer considers itself a member of the organization" Viliam Siroky, its Minister of Foreign Affairs, states that in the opinion of the government of Czechoslovakia, the World Health Organization does not fulfil the aims and principles of its constitution. The letter adds "Fundamental objectives have remained a dead letter Moreover, the World Health Organization is subject to influences which lead to discrimination against member states, among them Czechoslovakia."

The World Health Organization issued the following as background information Services since 1947 have included assistance in tuberculosis and venereal disease campaigns in Czechoslovakia and in rehabilitation of an UNRRA penicillin plant, which is now operating WHO has granted Czechoslovakia sixty-two fellowships permitting senior personnel to study abroad in countries including the U S S R. The sum of $37,000 has been granted for fellowships in 1950 In addition to providing considerable quantities of medical literature and teaching equipment, the World Health Organization has assisted Czechoslovakia in the following undertakings (1) A new state medical library and documentation center, including a microphotography laboratory, subscriptions to one hundred and seventy foreign periodicals and provision of large collections of textbooks (2) a training center for anesthetists scheduled to open next month and to offer international courses and (3) plans for a Swedish team scheduled to go to Czechoslovakia next June under WHO auspices to demonstrate new technic in the treatment of congenital heart diseases, including operations for 'blue babies" The World Health Organization had agreed to provide the staff as well as complete equipment, which is now ready for shipment

CANADA

Canadian Medical Association Meeting—This association will hold its annual meeting in conjunction with the Nova Scotia Division at the Nova Scotian Hotel in Halifax June 19-23 under the presidency of Dr Jack F C Anderson Saskatoon Guest speakers at the general sessions include

George W Thorn Boston The Osler Oration Cortisone and Pituitary Adrenocorticotropic Hormone (ACTH)—Their Current Application to Medical Problems
Richard Schatzki Cambridge Mass Roentgenological Aspects of Peptic Ulcer
John R Lindsay Chicago Ménière s Syndrome Diagnosis Pathology and Treatment.
James A Evans Boston Place of Splanchnicectomy in the Treatment of Hypertension

Round tables and sectional meetings are scheduled Several national special societies will hold meetings in conjunction with the association

Marriages

FRANK McDONALD PECK to Miss Betty Louise Duncan, both of Huntington, W Va. in Logan March 28.

AUBREY HARRIS JONES Fort Custer, Mich to Mrs Mary Julia Walls in Marshall, April 11

GEORGE ROSTEL, Fargo N D to Miss Ilse Edelmuth of New Haven Conn March 30

WESLEY L PETERSON JR. to Miss Joan M Cook, both of Oak Park, Ill February 10

MARJORIE PIEHL, Madison, Wis., to DR NORMAN HARRIS of San Francisco, March 3

CAROL TOMLINSON to Mr Frank W Matthay, both of Janesville, Wis., February 14

VOLNEY B HYSLOP and Miss Carolyn Seely both of Milwaukee March 8

Deaths

Joseph Grindon Sr, ⊕ St Louis, born in St Louis Aug 20, 1858, St Louis Medical College, 1879, where he was lecturer on diseases of the skin from 1886 to 1895, professor of physiology, 1894-1895, and professor of dermatology from 1895 to 1900, professor of clinical dermatology and syphilology at Washington University School of Medicine from 1900 to 1912, when he became professor of dermatology at St Louis University, serving until he was made professor emeritus in 1944, specialist certified by the American Board of Dermatology and Syphilology, member and past president of the American Dermatological Association, in 1899 president of the St Louis Medical Society and St Louis Dermatological Society from 1914 to 1924, vice president of the Missouri State Medical Association, 1931-1932, member of the American Academy of Dermatology and Syphilology, Chicago Dermatological Society, Dermatological Conference of the Mississippi Valley, Society for Investigative Dermatology, Archeology Institute of America, St Louis Academy of Sciences and Missouri State Academy of Science, corresponding member of Societe Francaise de Dermatologie et de Syphiligraphie, affiliated with St John's, St Mary's, Desloge and St Louis City hospitals, president of the Medical Society of the City Hospital Alumni in 1897, author of "Diseases of the Skin" (1902), author of several chapters in the "American Text-Book of Genito-Urinary Diseases," "Syphilis and Diseases of the Skin" (1898) and "Handbook of Cutaneous Therapeutics" with Dr W A Hardaway (1907), received an honorary Sc D degree from St Louis University in 1943, died in St Mary's Hospital April 1, aged 91, of arteriosclerotic heart disease

Ferdinand Oscar Wolfgang Reinhard, Baltimore, born in Baltimore in 1886 Johns Hopkins University School of Medicine, Baltimore, 1914, in 1923 received the degree of master of public health from the Johns Hopkins School of Hygiene and Public Health, in 1915 was associated with the antityphus commission in Serbia, during World War I spent 18 months with the U S Army in France as first lieutenant in the medical corps, at one time attached to the American Red Cross Commission on Child Hygiene, stationed in Czechoslovakia, where he supervised a group of children s clinics, from 1923 to 1925 was district state health officer with the New York State Department of Health, served as health officer of Baltimore and as director of the bureau of venereal diseases of the Baltimore City Health Department, died April 2, aged 63 of muscular dystrophy

Lester Taylor ⊕ Cleveland, born in Verona, N Y, Aug 18, 1884, Johns Hopkins University School of Medicine, Baltimore, 1910, specialist certified by the American Board of Internal Medicine, served during World War I and was on draft board no 50 in Shaker Heights, Ohio, during World War II, member of the American Public Health Association, past president, vice president in 1934, director from 1928 to 1937, secretary-treasurer from 1920 to 1922 and chairman of various committees of the Academy of Medicine of Cleveland, founder and president of the Cleveland Health Museum, director of medicine at St Luke's Hospital, died suddenly while on a vacation at Pinehurst, N C, April 11, aged 65, of coronary thrombosis

Clarence W Hopkins ⊕ Elmhurst, Ill , born in 1872, Northwestern University Medical School, Chicago, 1901, Associate Fellow of the American Medical Association, member of the American Association of Industrial Physicians and Surgeons and the Western Surgical Association, fellow of the American College of Surgeons, past president of the Association of Railway Chief Surgeons, American Association of Railway Surgeons and the Chicago Society of Industrial Medicine and Surgery, chief surgeon of the Chicago and Northwestern Railway from 1914 until his retirement in 1934, emeritus surgeon at St Luke's Hospital in Chicago, died in Memorial Hospital March 17, aged 77, of diabetes mellitus

Herman Bernard Sheffield ⊕ New York, born in Germany Jan 4, 1871, College of Physicians and Surgeons, Baltimore, 1895, for many years instructor in diseases of children at the New York Post Graduate Medical School and Hospital, fellow of the New York Academy of Medicine, at various times on the staffs of the Beth David, Jewish Memorial, Babies and Community hospitals, recipient of the Alvarenga Prize of the College of Physicians of Philadelphia in 1914 and the Merritt H Cash Prize of the Medical Society of the State of New York in 1920, author of "Modern Diagnosis and Treatment of Diseases of Children" and "Backward Baby", died March 17, aged 79, of arteriosclerosis

Charles Frederick Tenney ⊕ Beverly Hills, Calif , born in Bement, Ill , Jan 4, 1876, University of Michigan Department of Medicine and Surgery, Ann Arbor, 1904, specialist certified by the American Board of Internal Medicine, at one time on the faculty of his alma mater, fellow and formerly member of the board of regents of the American College of Physicians, served as a trustee of the New York Academy of Medicine, member of the Medical Society of the State of New York, served on the staff of Flower and Fifth Avenue Hospitals in New York, died March 31, aged 74, of cerebral hemorrhage

Daniel Clarence Steelsmith, Liscomb Iowa, born in 1877, State University of Iowa College of Medicine, Iowa City, 1902, served as commissioner of health of Dubuque, deputy state commissioner of health and state commissioner of health, formerly health officer of the Halifax-Pittsylvania Health District in South Boston, Va , served two terms, in the Iowa legislature as a representative from Osceola County, in 1947 was presented with an honorary degree of master of public health from Harvard University, died in Iowa Lutheran Hospital, Des Moines, March 12 aged 72 of coronary occlusion

Fern Morton Cole ⊕ Caldwell Idaho, born in Durand, Ill , Jan 18, 1876, Northwestern University Medical School, Chicago, 1898, president of the Idaho State Medical Association, 1939-1940, member of the state medical examining board of Idaho, 1926-1927, served during World War I, state director of medical procurement for the Selective Service system during World War II, lieutenant colonel in the Idaho National Guard, formerly member of the school board in Caldwell, past president of the Caldwell Chamber of Commerce, died April 2, aged 74, of heart disease

Charles Jerome Shepard ⊕ Columbus, Ohio, born in Nelsonville, Ohio, July 11, 1870, Bellevue Hospital Medical College, New York, 1894, emeritus clinical professor of medicine (dermatology) at Ohio State University College of Medicine, specialist certified by the American Board of Dermatology and Syphilology, member of the American Academy of Dermatology and Syphilology and the Columbus Academy of Medicine, of which he had been president in 1909 affiliated with Children's, Mount Carmel St Ann's Maternity and St Francis hospitals, died March 8, aged 79, of cerebral hemorrhage

Charles Franklin Anderson, Brentwood, Tenn , Vanderbilt University School of Medicine, Nashville, 1907, formerly assistant professor of clinical urology at his alma mater; specialist certified by the American Board of Urology, past president of the Middle Tennessee Medical Association, member of the American Urological Association and the American Medical Association, served during World War I, fellow of the American College of Surgeons, formerly on the staffs of Nashville General and Protestant hospitals in Nashville, died March 1, aged 68, of heart disease

Stephen Mitterling ⊕ Philadelphia, born in Richfield, Pa, Feb 18, 1879, Medico-Chirurgical College of Philadelphia, 1911, served as vice president of the Philadelphia County Medical Society and as president of the West Philadelphia Medical Association, of which he had been a member of the board of directors for many years, formerly on the faculty of his alma mater and the University of Pennsylvania School of Medicine, on the staff of Methodist Hospital, physician at the Presbyterian Home for Widows and Single Women, died March 19, aged 71, of leukemia

Joseph Francis Bicak ⊕ New York, New York University Medical College, New York 1897, died recently, aged 73, of carcinoma of the stomach

Henry Bernard Boyle, New York, Long Island College Hospital, Brooklyn, 1895, senior physician with bureau of industrial hygiene, died January 11, aged 75 of coronary disease

Henry Clay Burson, Seattle, Toledo Medical College, 1896, served during World War I, died in Swedish Hospital March 1, aged 79

Edmund Strudwick Burwell, Birmingham, Ala , Harvard Medical School, Boston, 1920, served as associate clinician in the division of tuberculosis control, Georgia State Department of Health in Atlanta, died March 2, aged 63, probably of angina pectoris

Lafayette Thomas Cox, Monon, Ind , Medical College of Indiana, Indianapolis, 1892, served during World War I, formerly on the staffs of the Veterans Administration hospitals in Indianapolis and Milwaukee, at one time coroner of Ripley County and member of the state legislature, died in the Veterans Administration Hospital in Oteen, N C, February 19 aged 81, of metastatic carcinoma of the right lung, brain and intestine

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⊕ Indicates Fellow of the American Medical Association

Clarence Augustus De Puy, Oakland, Calif , College of Physicians and Surgeons of San Francisco, 1905, member of the Pacific Coast Society of Obstetrics and Gynecology, of which he had been secretary, fellow of the American College of Surgeons, past president of the Alameda County Medical Society, served on the staffs of the Highland-Alameda County Hospital and Samuel Merritt Hospital, where he died March 12, aged 67, of acute coronary occlusion and hypertension

Richard Dutton ⊕ Wakefield, Mass , Harvard Medical School Boston, 1901, formerly treasurer of the Middlesex East District Medical Society, during World War I was secretary of the medical advisory board of draft district number 31, which comprised Wakefield and Melrose, for many years trustee and at one time chairman of the Beebe Memorial Library, on the honorary staff of the Melrose (Mass) Hospital, died March 10, aged 74, of cerebral hemorrhage

Frederick Ferdinand Ehlers, Oak Park, Ill , Northwestern University Medical School, Chicago, 1905, died in West Suburban Hospital February 6, aged 79, of rheumatic fever, valvular heart disease and nodular hyperplasia of the prostate

William H Gaugh, Granada, Minn , Ensworth Medical College St Joseph, Mo, 1884, died in the Fairmount (Minn) Community Hospital recently, aged 90, of bronchopneumonia

Clarance Alexandre Guillot, New York, Howard University College of Medicine, Washington, D C, 1925, member of the American Medical Association, during World War I served overseas with the U S Army Intelligence Service as an interpreter, died at his home in Watertown February 11, aged 60

Andrew Henry Hangarter ⊕ Brooklyn, Columbia University College of Physicians and Surgeons, New York, 1908, fellow of the American College of Physicians, associated with St. Catherine s and Evangelical Deaconess hospitals, died March 10 aged 66

Wilbur Frederick Helmus, Louisville, Ky , University of Louisville School of Medicine, 1924, member of the American Medical Association, past president of the medical staff of Methodist Deaconess Hospital, on the staff of SS Mary and Elizabeth Hospital, died in St Joseph Infirmary March 2, aged 50, of cerebral hemorrhage.

Frank Albert Higgins, Newton, Mass , Harvard Medical School, Boston 1893, member of the American Medical Association, died January 3, aged 84, of myocardial infarction

John Charles Kachline, Quakertown, Pa , Medico-Chirurgical College of Philadelphia, 1901, member of the American Medical Association, died recently, aged 75

John Gill Lilly, Aberdeen, Miss Tulane University of Louisiana School of Medicine, New Orleans, 1932, member of the American Medical Association, died February 24, aged 40, of injuries received in an automobile accident

Thomas Edgar McCall, Phoenix, Ariz , Kentucky School of Medicine Louisville, 1893, served during World War I, died March 14, aged 78, of cerebral hemorrhage

Joseph Arthur Macaulay, Boston, Tufts College Medical School Boston, 1911, died January 27, aged 68, of cerebral thrombosis

Rupert Kingsley McHenry, Houston, Texas, University of Texas School of Medicine, Galveston, 1917, specialist certified by the American Board of Radiology, member of the Radiological Society of North America and the American College of Radiology, served overseas during World War I, died recently, aged 59, of cerebral arteriosclerosis

W S McMahon, Emerson, Ark (licensed in Arkansas in 1903) died March 6, aged 93, of mitral stenosis

Andrew D Miller, Sullivan, Ill , Missouri Medical College, St Louis, 1891, member of the American Medical Association died recently, aged 85, of cerebral hemorrhage and hypertension

Frederick Benjamin Moore, Shabbona, Ill , Keokuk (Iowa) Medical College, College of Physicians and Surgeons, 1902 member of the American Medical Association, for many years health officer, served on the staffs of St Mary's and Glidden Memorial hospitals in DeKalb, died January 15, aged 75, of arteriosclerotic heart disease

William Sherman Morris, Fullerton, Ky , Kentucky School of Medicine, Louisville, 1906, died January 9, aged 83, of senility

Chester Riland, Baltimore, Maryland Medical College, Baltimore, 1912, died March 11, aged 64, of coronary thrombosis and diabetes mellitus

Sydney M Robinson, Woodlawn, Va , Medical College of Virginia, Richmond, 1886, member of the American Medical Association, died in Jefferson Hospital, Roanoke, recently aged 89, of bronchopneumonia, gangrene of the foot and arteriosclerosis

Erwin J Rueck, Gifford, Ill , Chicago College of Medicine and Surgery, 1913, member of the American Medical Association, died in Paxton (Ill) Community Hospital recently aged 62, of cardiovascular renal syndrome and cerebral hemorrhage

Nathaniel Charles Schlossmann, Waukesha, Wis , University of Wisconsin Medical School, Madison, 1937, member of the American Medical Association on the staff of Waukesha Memorial Hospital, died March 14, aged 36, of coronary thrombosis

Norman McLean Scott ⊕ Lieutenant Colonel, U S Army, retired, East Orange, N J , born in Hyde Park, Mass , Jan 17, 1889, Tufts College Medical School Boston, 1911, served during World War I, entered the medical corps of the regular U S Army as a first lieutenant in 1917, retired March 31, 1938, fellow of the American College of Surgeons, medical director and executive vice president of the Medical-Surgical Plan of New Jersey in Newark, died March 30, aged 61, of heart disease

Charles Moffett Simpson ⊕ Temple, Texas, Harvard Medical School, Boston, 1919, fellow of the American College of Surgeons, member of the American Urological Association and the Texas Surgical Society, immediate past president of the Texas Urological Society and past president of the Bell County Medical Society, one of the senior surgeons at the Scott and White Clinic, associated with the Scott and White Hospital, where he died March 30, aged 54, of heart disease

Charles Crawford Stroud, Natchitoches, La , Tufts College Medical School, Boston, 1898, died recently, aged 79, of cerebral hemorrhage

Ronald Curtis Vetter, Hamilton Field, Calif , University of Kansas School of Medicine, Kansas City, Kan, 1940, served during World War II, major, U S Air Force Reserve, chief of medical service of the Army Air Force Base Hospital, died January 31, aged 35, of an accidental overdose of a barbiturate.

Stephen Sidney Watson, Moosic, Pa , Jefferson Medical College of Philadelphia, 1894, member of the American Medical Association served on the staff of the Taylor (Pa) Hospital, died February 25, aged 82

Walter William Wells ⊕ Oklahoma City, born May 24, 1880, University of Oklahoma School of Medicine, Oklahoma City, 1910, emeritus professor of obstetrics at his alma mater, past president of the Oklahoma County Medical Society, a life member of the Central Association of Obstetricians and Gynecologists, fellow of the American College of Surgeons, served during World War I, on the staffs of St Anthony, State University and Crippled Children's hospitals, died February 14, aged 69, of hemorrhage and duodenal ulcer

Olof S Werner ⊕ St Paul, Milwaukee Medical College, 1897, died March 24, aged 83, of cerebral arteriosclerosis and coronary insufficiency

Lewis Allen Whipple, Peoria, Ill , American College of Medicine and Surgery, Chicago, 1905, died March 21, aged 73, of acute myocardial infarction and diabetes mellitus

Pearl Williams ⊕ Providence, R I , College of Physicians and Surgeons, Baltimore, 1896, member of the consulting staff at Rhode Island Hospital, on the staff of the Charles V Chapin Hospital, died in the Jane Brown Memorial Hospital March 13, aged 75, of carcinoma of the lung and empyema secondary to an operation

Albert Jefferson Winebrake ⊕ Scranton, Pa., Jefferson Medical College of Philadelphia, 1899, past president of the Lackawanna County Medical Society, vice president and a member of the board of directors of the Lackawanna Chapter of the National Foundation for Infantile Paralysis, chief of gynecology and past president of St Mary's and Mercy hospitals, died March 4, aged 75, of acute myocarditis and pneumonitis

John Stubbs Yates, Paterson, N J , Medico-Chirurgical College of Philadelphia, 1898, member of the American Medical Association, past president of the Passaic County Medical Society, served on the staff of St Joseph's Hospital, died March 18, aged 82, of bronchitis

Foreign Letters

LONDON

(From a Regular Correspondent)

March 27, 1950

Public Spending

In a leading article the London *Times* of March 14 tells its readers

"Last Budget Day, Sir Stafford Cripps, (Chancellor of the Exchequer) reminded members of the House of Commons of their traditional duty as 'defenders of the taxpayer against the rapacity of the executive' Today he will be one of the speakers defending the executive's request for an additional vote of $592 million to cover the Government spending of the financial year now ending The Treasury last year imposed a virtual ban on supplementary estimates except when there was a major change of policy, and declared in a circular that 'it is not opportune to initiate measures involving further expenditure except in cases of peculiar need and urgency and such measures should not be put in hand without Cabinet authority' As the executive is asking for an additional vote of $592 million it is only fitting that the Opposition should have tabled an amendment deploring the Chancellor's 'failure to enforce his own instructions to departments not to overspend so extensively their estimates for the current year'

"The issue posed is the chronic tendency of public expenditure to rise and pass out of control Two thirds of the additional money asked for is to meet the rising cost of the health service It is not surprising that so novel an enterprise is proving difficult to manage, especially since it was launched before the remuneration of most of the professions concerned had been settled and without any attempt to ascertain the probable public demands on its various branches It is highly disturbing that no one should seem to know whether the funds it is absorbing are reasonable or excessive, wisely or wastefully used The cost is now so high that such information has become imperative"

It goes on to point out that the Ministry of Health has never provided a memorandum on its own estimates in order to have available statistical material on which a proper judgment of its requests for funds may be formed

It continues "It is intolerable that Parliament should still be asked to supply scores of millions of pounds for purposes no better defined than 'maintenance and running costs' of the hospitals, 'including specialist services,' and with no more evidence that the money is to be well spent on necessary objects than the assurance of one Minister in one speech

"In 1948-1949 the annual cost of the health service was about $25 a head of the population, in 1949-1950 it has risen to $34 Current spending by the hospitals has gone up from $15 to $19 Outlay on dentists is up from $2 50 to $4 a head, on chemists' supplies from $2 to $3, on eye services from $1 60 to $2 These increases, and those officially foreseen for the year now beginning, could not be defended except by a really convincing demonstration that the funds are not being wasted, and, even then, in the present state of the national economy, the need for retrenchment would remain Some limit must be set—whether by stricter control of hospital budgets, however worthy all hospital expenditure may be, by the adjustment of any rewards in the service which may seem excessive, or by putting a price upon benefits, such as medicines, where demand runs beyond all calculation It is no longer possible to defend this great national venture simply by saying 'Can we afford not to afford it?' The Minister of Health has not only to prove the worth of what he spends, he has also to pledge his contribution to cheaper government"

COSTS VERSUS TAXES

The *Times* also points out in another article, "The true permanent public cost of the service differs from the amount required in taxes on the National Health Service votes" These votes include certain nonrecurring expenditure involved in launching the service, such as the settling of former hospital debts They omit a few charges, such as the administrative costs of the central departments responsible for the service They were reduced in 1948-1949 by $104 million (approximately) and in 1949-1950 by $80 million (approximately), by unrepeatable windfalls in the form of superannuation funds taken over by the government from other agencies They omit nearly one seventh of the cost, which falls on local rates and national insurance funds

PUBLIC COST

With these adjustments and omitting nonrecurring charges, the approximate true public cost is summarized in the table, which shows the equivalent annual expenditure for the first nine months up to March 1949, together with the original and final estimates for 1949-1950

Cost of National Health Service

	1948 1949, Annual Rate of Spending *	1949-1950 Original Estimates *	1949-1950 Final Estimates *
Hospitals			
Capital outlay	44	56	56
Running costs, gross	720	736	929
Associated services, gross	24	40	44
	788	832	1 028
Less fees, etc	68	12	80
Net public cost	720	820	918
General services			
Family doctors	180	184	188
Chemists	96	84	140
Dentists	116	124	191
Eye service	80	60	100
Local services	112	124	124
Miscellaneous	44	52	52
Total all services	1,348	1 448	1,740
Less net gain on staff superannuation	140	124	70
Net cost of services	1,208	1,324	1,676
Borne on			
Rates	56	60	60
Insurance Fund	144	164	164
Taxes	1,012	1,064	1 452

* Figures indicate millions of dollars

The total public cost has risen from $1,208,000,000 in 1948-1949 (annual rate to $1,676,000,000 in 1949-1950 The government's forecast for 1950-1951 implies a further rise to at least $1,800,000,000 These figures provoke two main questions Is the outlay justified by results? Why have the official estimates been so wide of the mark for two successive years? The divergence between original and final estimates was small in both years for local services (clinics, midwives, district nursing, ambulances and the like) and for the family doctor service In the case of the general running costs of the hospitals (by far the largest single item) the estimate was 15 per cent short in 1948-1949 and 21 per cent short in 1949-1950 For the chemists' bill the original estimates were 28 and 41 per cent short, respectively, in the two years, for dentistry, 63 and 36 per cent, and for the eye service, 84 and 42 per cent

HOSPITAL ESTIMATES

The first hospital estimates could not have been other than a wild guess For the 12 months from April 1949 as the table shows, the government sought to restrict both capital and current hospital outlay to the same rate as in 1948-1949 But the estimates had to be prepared in the autumn of 1948, when the new authorities were only just beginning to explore the costs of their newly acquired hospitals They could not be based on any real knowledge of hospital needs, and the initial decision to allow no expansion of the hospital budget was purely arbitrary

DOCTORS AND DENTISTS

Still more striking is the contrast between the carefully regulated payments to the 20,000 family doctors in the service and the seemingly limitless payments to the 10 500 dentists The latter have worked hard to earn their $194,400,000, but almost certainly no harder than the former for their $188,400,000 Even assuming that 50 per cent of the dentists' earnings go in expenses, but only 35 per cent of the doctors', it seems strange that the average doctor s net reward from the state should come to about $6,120 a year, while the dentist should receive—at least while the boom lasts—about $9,200

Most difficult of all is the problem of the chemists' bill Far from dropping as the government had expected this bill exceeded the government's own estimate for 1949-1950 by 75 per cent and was more than half as large again as the annual rate for 1948 1949 The average family doctor is now spending about $7,080 a year on prescriptions, or $3 a head of the population, compared with $2 a head annually in 1948-1949 There seems to be no means which would not be resented by doctors as a restriction of their professional freedom, of preventing a further increase in this outlay—except, it must be emphasized to reintroduce charges for medicines The discipline necessary to prevent a breakdown of the service is discernible neither in those patients who flock to their doctors with coughs, colds, scratches and other minor troubles, which they would have nursed unaided two years ago nor in those doctors who sign chits to the chemist as the quickest way of getting rid of such patients

ITALY

(From a Regular Correspondent)

FLORENCE, March 5, 1950

Congress on Aerosol Therapy

The Congress on Aerosol Therapy was held in Viareggio, February 19-20, under the chairmanship of Professor Guassardo, director, Pediatric Clinic, University of Turin Professor Guassardo discussed the present state of aerosol therapy and considered three principal problems which are under investigation at his school the physical state of the drug introduced into the respiratory tract the technic to be used, and control of the therapy Until many aspects of the problem have been clarified aerosol therapy will remain somewhat empiric Professor Guassardo believes that the problem will be solved soon and that his school will contribute to the solution With regard to the second problem he reported that the transpulmonary passage of the drug in aerosol form ("diapneumotherapy") has been achieved by his school, constituting todav a novelty in the therapeutic field The administration of the drug by the transpulmonary route is carried out in suitable rooms the results obtained by Professor Egidi and Dr Gonirato of his clinic were satisfactory in the treatment of pertussis and epidemic cerebrospinal meningitis An urgent problem was the dosage of the micronebulized therapeutic agents necessary to keep a constant density to assure a blood level of the drug which would cure different diseases The problem was solved with Professor Guassardo s apparatus, which regulates the density of the spray It is based on the principle of penetration of luminous rays through the nebulae, which, in relation to the density, sensitize a photoelectric cell connected with the aerosolizer. A great variety of apparatus has been designed for this purpose, but not all types possess the necessary requirements for correct treatment This method of treatment is not without danger It has been observed that some vasodilator substances administered to dogs in aerosol form bring about serious disturbances which result in the death of the animals Consequently, physicians still must be cautious with medicated aerosols

Professor Micheli, director of Santa Maria Nuova the largest hospital in Florence, reported on 363 cases of bronchial asthma in which he observed favorable results with aerosol therapy

TURKEY

(From a Regular Correspondent)

ANKARA, March 30, 1950

Causes of Blindness in Turkey

Dr Suat Seren (ophthalmologist) has made a study of government statistics in relation to the trachoma campaign undertaken by the Ministry of Health At the second national medical congress in Ankara in 1927 trachoma was a subject for lively discussion and a campaign against it was recommended In October of the same year the first census taken revealed that of Turkey s 13,648,270 inhabitants 15 322 men and 11 638 women (19 7 per 10,000) were blind According to the second census in 1935, of 16,158 018 inhabitants 27 232 men and 23 500 women (31 per 10,000) were blind The results of the 1940 and 1945 census have not yet been published

Incidence of Trachoma

Year	Simple Trachoma	Complicated Trachoma	Total Cases	Blind	Number of Cases per 10 000
1932	32 745	8 788	41 642	82	19
1939	70 404	41 527	111 931	365	32
1948	34 007	22 531	56,538	108	20

The report presented at the international congress of ophthalmology in Amsterdam in 1929 shows that in Palestine 166 7, in Egypt 19 7, in Persia 24 9, in North Africa 20 7, in Algeria 18 8, in Japan 17.2 and in Russia 16 9 per 10 000 persons were blind The 1934 census in Bulgaria indicates that of the 6 million inhabitants 4 600 persons (7 7 per 10 000) are blind According to the 1930 census in Rumania of the 18 million inhabitants there were 9,328 (5.2 per 10,000) blind. The 1930 census of France, with a population of 41 million, indicated that there were 32 920 (8 per 10 000) blind Before World War II Great Britain had 46 822, Spain 38,000 and the United States 36,489 blind

The explanation for the increase in blindness which the second census, in 1935, revealed probably is, that in the eastern provinces, where the rate of blindness is highest, the census takers failed to include outlying communities and that severe trachoma, in spite of medical care, was not curable and later resulted in blindness Also, in the initial stage of the campaign which was begun in 1928, because of lack of trained personnel and equipment, all rural communities could not be reached When personnel had been trained ambulant units were set up and in due time the organization of the campaign was well under way Trachoma is endemic in the provinces of Gaziantep Urfa, Mardin, Sirt Diyarbakir and Malatya During World War I it became epidemic as the result of troop movements through Syria, Transjordan and Arabia and the influx of refugees from these regions The Ministry of Health gives the statistics from the trachoma campaign units as shown in the table.

In 1949 the Ministry of Health reinvestigated trachoma in the two urban communities where the incidence of trachoma was highest. Of the 41,000 inhabitants of the city of Diyarbakır, 34,496 persons were examined and of these 81 were totally blind, or 23.5 per 10,000. In the 1927 census the rate was 36 per 10,000. In Siirt, with a population of 16,230, of the 9,698 persons examined there were 14 blind, or 14.4 per 10,000. In the 1927 census there were 45 blind per 10,000. These figures indicate that the campaign, which in these regions began in 1931, has shown good results. In other urban communities similarly satisfactory results are expected. In rural communities, where the campaign began much later and where conditions affecting public health are lowest, such satisfactory results are not expected.

Blindness in Turkey is primarily due to trachoma; accidents are rarely the cause of blindness; neither is smallpox, because of compulsory vaccination. Because of the good results of the venereal disease control work of the past 25 years, congenital blindness due to syphilis or gonorrhea is rare.

Excellent results are being obtained with sulfonamides and antibiotics; they shorten the treatment and relieve pain. Besides preventive measures, the raising of the standard of living in the backward rural communities is an important factor in stamping out trachoma, thus reducing the chief cause of blindness.

Pellagra in Turkey

Pellagra has been known to occur for 30 years in the rural communities of western Anatolia. It also occurs elsewhere but is found chiefly in eastern provinces, where the diet of the rural population is restricted and notably deficient in vitamins. Dr. Kemal Turgut of the department of dermatology of the Aydın General Hospital reported on 20 patients with pellagra. Investigating the varying incidence of pellagra in the province of Aydın, where, because of the fertility of the soil the standard of living among the rural population is comparatively high, Dr. Turgut concludes that conditions arising from the state of preparedness of the war years unfavorably affected the dietary habits of the people and that the exceptional heat and dryness during 1945 and 1946 were also responsible in part. Of the 20 pellagra patients of the 6,300 patients examined during that period in the outpatient department of the Aydın General Hospital, 11 were men, 9 were women, 6 patients were 6 to 15 years of age, 9 were 16 to 45 and 5 were more than 46. The patients chief complaints were discoloration and reddening of the skin, severe itching often preventing sleep, indigestion, diarrhea, anemia and weakness. Most patients suffered from skin lesions on the hands, arms and legs. In several patients pellagra was associated with anemia and malaria tropica, in several with digestive and intestinal disturbances and in 1 patient with pyoderma. The diet of these patients consisted of rye bread, millet and corn, occasionally soup made of pounded wheat and yoghurt made of skimmed milk. Fruit was eaten only rarely, and there was no meat and fish in the diet. The action of strong sunlight, to which the patients working in the fields had been exposed, caused erythema, hyperpigmentation, papules and lamellar desquamation, mainly of exposed surfaces. Examination of the blood revealed the hemoglobin level to be 50 to 60 per cent of normal, 3,000,000 to 3,900,000 red blood cells, 6,000 to 9,000 white blood cells and an insignificant differential leukocyte count. The sedimentation rate was 25 mm. after half an hour, 50 mm. after one hour and 105 mm. after two hours. At the hospital, where a well balanced varied diet, including whole wheat bread, meat, fresh vegetables, butter, cheese and eggs, was used and medication included 6 to 15 Gm. dried yeast, injections of liver and nicotinic acid, recovery occurred in 6 to 16 days except in a 9 year old child, who because of intestinal disorders remained in the hospital 37 days.

The Menderes River traversing the Aydın plain gives it a semitropical climate; there is no spring; the change from cold to hot is sudden; it is Anatolia's hottest region. According to meteorologic observations Izmir and Aydın have an average of 3,054 hours of sunlight per year, Mugla has 3,000 hours, Diyarbakır 2,905, Afyonkarahisar 2,567, Kırşehir 2,528, Eskişehir 2,524, Ankara 2,510, Istanbul 2,378 and Edirne 2,261. During the summer the temperature in the Aydın plain is often 41 C. in the shade and may remain at that level for days. However, among the urban communities of the same region the diet is well balanced and pellagra does not exist, which points to dietary origin. Deficiency diseases are not a public health problem in Turkey, but, unless there is economic and social improvement of the people, health education stressing the importance of proper nutrition and vitamins cannot effect the prevention and eradication of such diseases.

Electroshock Treatment

Ord. Prof. Fahreddin Kerim Gokay of the Istanbul University Mental and Neurological Hospital has published his experience with electroshock treatment of almost 1,000 hospital and 130 private patients. The patients were given a careful cardiovascular and lung examination, and the absence of tumor of the brain was determined. Patients with cardiac disease, pulmonary tuberculosis, tuberculosis of the vertebrae, osteitis deformans, osteitis fibrosa cystica, broken bones or a dislocated joint and menstruating or pregnant women were not given the treatment. Maniacal patients were given the treatment daily and others three times a week.

Prof. F. K. Gokay is of the opinion that the treatment is not beneficial unless a proper crisis is effected; on the contrary, it produces a state of fear in the patient and, when convulsions are involved, increases depression and anxiety. The patients who responded well to the treatment were those suffering from shock psychosis, melancholia, attacks of schizophrenic schizothemia, manic depressive psychosis and severe hysteria. In primary schizophrenia the treatment was successful in 1 out of every 3 cases. Results were unsatisfactory in hebephrenia, catatonia, paranoia, dementia precox, psychasthenia, obsession and paraphrenia. In these cases better results have been obtained with uninterrupted insulin (hypoglycemia) shock treatment.

In all chronic cases results have been unsatisfactory. There have been no accidents except for an occasional dislocation of the jaw, which was soon put into place without interruption of treatment. At the slightest indication that respiration might cease, artificial respiration was applied. Three to seven sessions were employed; in most cases four or five were sufficient. There have been few relapses. Attention was given to psychologic after-treatment, to allergy, the avoidance of strain on the liver and the prevention of anemia or hematomyelia as a result of a vertebral fracture. Occasionally amnesia occurred after treatment.

Penicillin in Syphilis Therapy

Dr. Cevad Sargin, chief of the Istanbul Cerrahpasha City Hospital venereal disease department, reported on penicillin therapy in 23 syphilitic patients. Penicillin was not available in Turkey until after the war; because of its high price it was used only for serious acute infections and its use was licensed by the Ministry of Health. Since it has became easily available at less cost it has also been used for the treatment of syphilis.

Correspondence

ADVANCES IN OBSTETRICS

To the Editor —The article in The Journal titled "Evaluation of Present Day Trends in Obstetrics" by Reid and Cohen (149 615 [March 4] 1950) presented the viewpoint of the institutional physician While their disproof of false theories, sometimes advanced in support of "normal childbirth," are timely and well taken, their prejudice against normal and natural processes is as unfounded as the statements they disprove

Physicians practicing in large city clinics surrounded by trained and skilled assistants and professional anesthetists, with the advantage of strictly controlled routines, find certain highly scientific procedures successful The physician doing his work in the small general hospital, where the attending physician, one nurse and the patient must do the job, gets as good results without the fanfare

For a quarter of a century we have observed the highly trained new physician, schooled in caudals, spinals (or in earlier days overwhelming doses of barbituates) begin their work in the fashion in which they were trained They had at that period sufficient time to supervise the caudal or other technic As they became more active, with less time to spare, and as they observed the success of the conservative methods of older men, they soon discarded these useful technics Simple education of the patient as to the process of labor, what to expect, what to do, sincere interest and proper care of the patient during her prenatal period, calling on the patient when admitted to the hospital to reassure her (not leaving this to the resident or intern), and the expression of encouragement in later visits during the first stage develop what DeLee has named the best and most harmless of all analgesia or anesthesia—'confidence in her physician"

Any physician, or group of physicians, can inject his personality into inquiries and so obtain almost any desired answer to prove a point Dr X convinces his patients that after preliminary barbital scopolamine preparation, spinal and forceps (not always low) is the ideal manner of childbirth The physician in the smaller community can just as often complete the same procedure with equal anatomic and personal success with the administration of 200 mg of meperidine hydrochloride, a local in the perineum and low forceps I have used the latter procedure in patients that have had the former used with previous deliveries I have inquired on the second day post partem which manner they desired in future deliveries and have yet to hear a request for the absent treatment.'

The physician out in the field is not likely to attempt to gather statistics He is, as a rule, too busy and has no resident to serve him in this capacity He does, however, observe his patient not only the seven or eight day period of hospitalization but often is in close contact with mother and baby for a year or more Many psychologic reactions are evident in this period to such a physician that are never seen or heard of by the doctor working in a large maternity center It is for this reason that the institutional physician is so unqualified to discuss rooming in" Ask the pediatrician of the smaller community, ask the family doctor, ask the patient in the hospital where rooming-in' is accepted by the management and the staff

All will grant the physician in the large teaching center the right and privilege of conducting his work in the manner he finds most successful Great credit should be given to the research work done by these men Advances of great value have resulted There is a resentment, however by physicians on the outside—and it is this group that delivers 98 per cent of the babies—when told that the quality of their work is inferior and is still part of the dark ages, because they do not utilize methods that are more complicated and carry with them a tremendous risk when used by the inexperienced or the physician not in the gold-plated maternity center The over-all improvement in the infant and maternal death rates is due to the judicious methods and conservative efforts of the obstetrician and general practitioner outside of the large medical centers Let us encourage him to continue to allow nature to take her course

James D Stark, M D, Erie, Pa

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Drunkenness Admissibility in Evidence of Chemical Tests for Intoxication—The plaintiff sued the state for death and injuries sustained by her deceased husband as the result of an automobile accident wherein it was alleged that the state negligently failed to properly designate a highway termination The case was heard by the court of claims of New York

In addition to evidence indicating that the deceased had been driving carelessly and at an excessive rate of speed, there was further evidence that he was intoxicated He had admittedly done some drinking during the day, and an analysis of a urine sample taken from him within an hour after the accident revealed an alcohol concentration of 0 305 per cent, which is the equivalent of an alcohol concentration in the blood of 0.235 per cent This, according to recognized scientific standards, indicates intoxication

The plaintiff objected strenuously to the admission of any evidence with respect to the analysis of the urine and the conclusions to be drawn therefrom The first contention is that such evidence would be admissible only under provisions of section 70, subdivision 5 of the Vehicle Traffic Law, which so far as pertinent reads as follows 'Upon the trial of any action or proceeding arising out of acts alleged to have been committed by any person arrested for operating a motor vehicle or motor cycle while in an intoxicated condition, the court may admit evidence of the amount of alcohol in the defendant's blood taken within two hours of the time of the arrest, as shown by a medical or chemical analysis of his breath, blood, urine or saliva For the purposes of this section (*a*) evidence that there was, at the time, five-hundredths of one per centum, or less, by weight of alcohol in his blood, is prima facie evidence that the defendant was not in an intoxicated condition, (*b*) evidence that there was, at the time, more than five-hundredths of one per centum and less than fifteen-hundredths of one per centum by weight of alcohol in his blood is relevant evidence, but it is not to be given prima facie effect in indicating whether or not the defendant was in an intoxicated condition, (*c*) evidence that there was, at the time, fifteen-hundredths of one per centum, or more, by weight of alcohol in his blood, may be admitted as prima facie evidence that the defendant was in an intoxicated condition

We agree with the plaintiff that this section is inapplicable to the present case, since there is no indication that the deceased was ever arrested for operating a motor vehicle while in an intoxicated condition We do not agree however, that such evidence is therefore, completely barred While we have found no New York decision directly in point, we have examined carefully the annotation on the subject of scientific tests for intoxication which appears in 159 American Law Reports Ann, page 209, and have concluded that evidence of such a test and expert opinions with respect to the interpretation thereof may properly be admitted in civil actions It is not, however conclusive on the issue of intoxication or, at least, is not conclusive on the effect which the degree of intoxication found may have had in the particular situation The state s expert, the director of the scientific laboratory of the New York State police, could and did state that the deceased was intoxicated according to established scientific standards based on urinalysis but, not having actually seen the deceased at the time, could not and did not state that such intoxication had rendered him unable or unfit to drive a car Therefore, while we surmise that his condition of intoxication probably had an effect on his manner of operating the automobile and on his attention to road conditions and warnings, we are not able to find and we do not find that such condition was necessarily the cause of the accident

The plaintiff also contends that, since the urine specimen was taken from the deceased while he was in an unconscious condition, the admission of any testimony with respect thereto would be a violation of his constitutional rights against self incrimination and against illegal searches and seizures We do not commend the method by which the specimen was obtained, said the court, but, under the rule of *People v Defore, 242 N Y 13 150 N E 585,* it is established that in this state evidence, although illegally secured, may nevertheless be admitted without violation of such constitutional rights We therefore deny the plaintiff's motions to strike out any or all of the evidence based on the urinalysis Accordingly the claim of the deceased for a recovery against the state was denied—*Hicks v State, 93 N Y S (2d) 560 (1949)*

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS *Parts I and II* Various locations, June 19 21 Final date for accepting applications is May 19 *Part III* Twenty nine centers, June 6 29 Registration closes on May 6 Exec Sec, Mr E S Elwood, 225 S 15th Street, Philadelphia

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY *Written* Various locations July 21 *Oral* Chicago Oct 8 11 Sec Dr Curtiss B Hickcox 745 Fifth Ave. New York 22

AMERICAN BOARD OF INTERNAL MEDICINE *Oral* San Francisco, June 21 23 The oral examinations in the subspecialties will be held at the same time and places *Written* Oct. 16 Final date for acceptance of applications is May 1 Asst Sec., Dr William A. Werrell 1 West Main Street Madison 3 Wis

AMERICAN BOARD OF NEUROLOGICAL SURGERY *Oral* Chicago, June 3 Applications no longer accepted Chicago, Oct 1950 Final date for filing applications is April 30 Sec Dr W J German 789 Howard Ave New Haven, Conn

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY, INC *Oral Part II* Atlantic City May 21 27 Sec, Dr Paul Titus, 1015 Highland Bldg Pittsburgh

AMERICAN BOARD OF OPHTHALMOLOGY *Written* Various Centers, January 1951 Final date for filing applications is July 1, 1950 *Practical* Boston May 22 26, Chicago Oct. 2 6, West Coast, Jan 1951 Sec. Dr Edwin B Dunphy, 56 Ivie Road Cape Cottage, Maine.

AMERICAN BOARD OF OTOLARYNGOLOGY *Oral* San Francisco, May Chicago October Sec Dr Dean M Lierle, University Hospital, Iowa City

AMRICAN BOARD OF PEDIATRICS San Francisco June 30 July 2 Exec. Sec Dr John McK Mitchell 6 Cushman Road, Rosemont Pa

AMERICAN BOARD OF PHYSICAL MEDICINE AND REHABILITATION *Oral and Written* Boston, Aug 26-27 Final date for filing applications is April 1 Sec., Dr Robert L Bennett 30 N Michigan Ave Chicago.

AMEDICAN BOARD OF PLASTIC SURGERY *Oral* May June Sec, Dr Louis T Byars 4647 Pershing Avenue St Louis, Mo

AMERICAN BOARD OF PREVENTIVE MEDICINE AND PUBLIC HEALTH *Written* Portland, Ore May 28 *Oral* Portland Ore, May 29 Sec., Dr E L Stebbins 615 N Wolfe St Baltimore 5 Md

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY San Francisco, June 23 24 Applications no longer accepted Next examination December 1950 Final date for filing applications is Sept 1

AMERICAN BOARD OF RADIOLOGY *Oral* Chicago, week of June 18 Sec Dr B R Kirklin 102 *10* Second Ave, S W Rochester Minn.

AMERICAN BOARD OF SURGERY *Written* Various centers Oct. 25 Final date for filing applications is July 1 Sec. Dr J Stewart Rodman 225 South 15th Street Philadelphia

AMERICAN BOARD OF UROLOGY Chicago *Feb 10-14, 1951* Final date for filing applications is Sept *1 1950* Sec Dr Harry Culver 7935 Sunnyside Road Minneapolis 21

BOARDS OF MEDICAL EXAMINERS

ALABAMA *Examination* Montgomery, June *27 29* Sec, Dr D G Gill 519 Dexter Avenue Montgomery

ALASKA * Juneau, Sept 5 Special examinations given on application Sec Dr W M Whitehead Box 140, Juneau

ARKANSAS * *Examination* Little Rock June 8 9 Sec Dr Joe Verser Harrisburg Homeopathic Little Rock June and November Sec Dr Carl S Bungart, 105 N 14th St Fort Smith *Eclectic* Little Rock, June 8 9 Sec Dr Clarence H Young 1415 Main Street Little Rock.

CALIFORNIA *Examination Written* San Francisco June 19 22, Los Angeles Aug 21 24 Sacramento Oct. 16 19 *Examination Oral and Clinical for Foreign Medical School Graduates* San Francisco June 18, Los Angeles, Aug *20*, San Francisco Nov 12 *Reciprocity Oral Examination* San Francisco, June *17*, Los Angeles, Aug 19 San Francisco Nov 11 Sec Dr Frederick N Scatena 1020 N Street, Sacramento 14

CONNECTICUT * *Examination* Hartford July 11 12 Sec. to the Board Dr Creighton Barker 160 St Ronan St. New Haven *Homeopathic* Derby July 11 12 Sec Dr Donald A Davis 38 Elizabeth St. Derby

DELAWARE *Examination* Dover July 11 13 *Reciprocity* Dover July 20 Sec, Dr J S McDaniel *229* S State St., Dover

FLORIDA * Jacksonville *June 25 27* Sec Dr Frank D Gray, 12 N Rosalind Avenue Orlando

GEORGIA *Examination* Atlanta and Augusta June *Endorsement* Atlanta June Sec Mr R C. Coleman 111 *State Capitol* Atlanta *3*

HAWAII *Examination* Honolulu July 10-13 Sec. Dr I L Tilden *1020* Kapiolani St Honolulu

IDAHO Boise *July 10* Sec Mr Armand L. Bird 305 Sun Bldg Boise

INDIANA *Examination* Indianapolis June. *Sec Dr Paul R* Tindall, 1138 K of P Bldg Indianapolis

IOWA * *Examination* Iowa City June 12 14 Sec Dr M A Royal 506 Fleming Building Des Moines 19

KANSAS Kansas *City* June *7 8* Sec Dr J F Hassig 905 N 7th Street, Kansas City

KENTUCKY *Examination* Louisville June 14 16 Sec Dr Bruce Underwood 620 S 3rd Street Louisville 2

LOUISIANA New Orleans June 8 10 Sec Dr Roy B Harrison 1507 Hibernia Bank Bldg New Orleans

MAINE *Examination and Reciprocity* Augusta, July 11 12 Sec Dr Adam P Leighton *192* State St, Portland

MARYLAND *Examination* Baltimore June *20 23* Sec. Dr Lewis P Gundry 1215 Cathedral Street Baltimore 1, *Homeopathic* Baltimore June *20 21* Sec, Dr John A Evans 612 W 40th St Baltimore

MASSACHUSETTS *Examination* Boston July 11 14 Sec. Dr George L Schadt Room *37* State House Boston 33

MICHIGAN * *Examination* Ann Arbor and Detroit June 12 14 Sec Dr J Earl McIntyre 100 W Allegan St. Lansing 8

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Current Medical Literature

AMERICAN

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Titles marked with an asterisk ( ) are abstracted below

American Heart Journal, St. Louis

38 801-972 (Dec) 1949

*Atrial Septal Defect Study of Intracardiac Shunts Ventricular Outputs and Pulmonary Pressure Gradient J B Hickam —p 801
*Cardiac Dysfunction in Hyperthyroidism Study of 810 Cases D Griswold and J H Keating Jr —p 813
*Conus Artery Third Coronary Artery M J Schlesinger P M Zoll and S Wessler —p 823
VI Correlation of Electrocardiographic and Pathologic Findings in Posterolateral Infarction G B Myers H A Klein and T Hiratzka —p 837
Pulmonary Arterial Pressure S Rodbard F Brown and L. N Katz —p *863*
Plasma Hexosamine Levels in Acute Rheumatic Fever C Rosenberg and B Schloss —p *872*
Improved Method for Visualizing Coronary Arteries at Post Mortem R W Scott A F Young H A Zimmerman and I Kroh —p 881
Necrosis in Coronary Arteries of Newborn Infants P Gruenwald —p 889

Atrial Septal Defect. — Hickam shows that patients with atrial septal defect provide an unusual opportunity for the study of certain problems connected with the regulation of cardiac output and the hemodynamics of the pulmonary circulation He reports observations on 4 patients with atrial septal defect in whom it was possible to catheterize pulmonary veins and to estimate the separate ventricular outputs and intracardiac shunts and to determine the pulmonary pressure gradient and pulmonary vascular resistance. It was found that the proportional and absolute values of the intracardiac shunts can change spontaneously and in response to exercise Changes in right and left ventricular outputs may not parallel each other during exercise and may even be opposite in direction Changes in right ventricular output may be opposite in direction to changes in right atrial pressure The pulmonary pressure gradient and right ventricular output were measured in 4 subjects at rest and in 2 during exercise In 2 subjects with apparently normal pulmonary vessels the pulmonary vascular resistance was extremely low (0 6 to 0 9 mm mercury per liter per minute) These subjects maintained a pulmonary blood flow of 15 to 20 liters per minute under pressure gradients of 12 to 13 mm of mercury One patient with pulmonary vascular engorgement had a pulmonary flow of 15 liters per minute with a pressure gradient of only 4 0 mm of mercury During exercise pulmonary hypertension developed in the patient with pulmonary vascular engorgement This was primarily due to an increase in left atrial pressure, but there was also a significant rise in the pressure gradient and the pulmonary vascular resistance

Cardiac Dysfunction in Hyperthyroidism —Griswold and Keating review a series of 810 patients with hyperthyroidism admitted to the ward and private services of St Luke s Hospital New York between 1927 and 1947 Patients with either persistent auricular fibrillation or signs of cardiac insufficiency on admission were classified as thyrocardiaos whether or not there was associated organic cardiovascular disease Those with hyperthyroidism who did not meet these standards were classified as nonthyrocardiacs and served as controls Paroxysmal tachycardia paroxysmal fibrillation and extrasystoles are the most common cardiac manifestations of hyperthyroidism but accurate evaluation of these arrhythmias in this survey was not feasible Of the 810 cases 103 (12 5 per cent) were thyrocardiacs The 72 thyrocardiacs surgically treated had an operative mortality of 6 9 per cent Six thyrocardiacs died as a result of cardiovascular complications before definitive treatment could be instituted There were 623 nonthyrocardiacs operated on with a mortality of 2.2 per cent, which for the past ten years has been 1 4 per cent Although hyperthyroidism is much less frequent in men than in women, the men are more likely to have cardiovascular complications Among the 103 thyrocardiac patients there were 44 per cent with toxic nodular glands and 56 per cent with hyperplastic glands In comparison, among the controls there were 34 per cent with toxic nodular glands and 66 per cent with hyperplastic glands Of 98 thyrocardiac patients 52 per cent had associated cardiovascular disease compared with 13 per cent in the 657 controls Despite the fact that the thyrocardiac subjects were ten years older, on an average, than the controls, the incidence of organic heart disease among them is higher than would be expected in their age group Attention should be called to the fact that as many as 48 per cent thyrocardiac patients had no demonstrable organic heart disease In the thyrocardiac group there were 11 per cent who complained of angina whereas in the controls there were only 3 5 per cent The severity of hyperthyroidism does not cause a thyrocardiac state Three patients in failure showed no sign of hypermetabolism The postoperative alleviation of the apparent myocardial disease proves the validity of this concept

The Conus Artery A Third Coronary Artery —According to Schlesinger and his associates the portion of the right ventricle in the human heart known as the area of the conus arteriosus often has a unique arterial blood supply through a vessel which they call the 'conus artery" The human hearts on which the authors made their studies were prepared by a method of injection plus dissection, which discloses the narrowings occlusions and anastomoses in the visualized coronary arteries The conus artery attracted attention in routine injections by this method, when the injection mass occasionally filled the conus artery by anastomotic pathways and leaked through its mouth into the aorta In 50 per cent of 651 hearts the conus arteriosus was supplied by an artery the conus artery, which is not a branch of the right or left coronary artery but arises by a separate ostium behind the right aortic valve cusp, courses over the anterosuperior surface of the right ventricle and terminates near the anterior interventricular groove Significant relations were found between the anatomic variations of this coronary artery and the remainder of the coronary arterial tree and the myocardium The incidence of occlusions in the conus artery is much lower than that of the three main coronary artery trunks but is similar to that in the primary branches of the coronary arterial tree. The conus artery often serves as a source of anastomotic blood supply directly from the aorta to the other vessels of the heart when these are narrowed or occluded The amount of myocardial damage resulting from coronary artery occlusion and narrowing is in part determined by the presence or absence of anastomoses between the conus artery and the rest of the coronary arterial tree

American Journal of Medical Sciences, Philadelphia

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Occurrence of Atheromatous Lesions After Cauterization of Aorta Followed by Cholesterol Administration J G Schlichter L N Katz and J Meyer —p 603
Vascularization of Aorta II Comparative Study of Aortic Vascularization of Several Species in Health and Disease J Schlichter and R Harris —p 610
*Premenstrual Intoxication E J Stieglitz and S T Kimble —p 616
*Parathyrotoxicosis Syndrome of Acute Hyperparathyroidism S O Waife —p *624*
Lower Nephron Nephrosis Carbon Tetrachloride Poisoning with Report of 3 Cases C J McGee —p 636
*Clinical Study of Institutional Outbreak of Acute Infectious Lymphocytosis G R. Barnes Jr H Yannet and R. Lieberman —p 646
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Effects of Vasodilator Drugs and Other Procedures on Digital Cutaneous Blood Flow Cardiac Output Blood Pressure Pulse Rate Body Temperature O Horwitz H Montgomery E D Longaker and A Sayen —p 669
Hysterectomy F B Block —p 683
Plasma Protein Fractionation in Pediatrics Review of Its Present Status A M Bongiovanni and I J Wolman —p 700

Premenstrual Intoxication — According to Stieglitz and Kimble premenstrual intoxication with its attendant edema and retention of sodium chloride and toxic materials is engendered by either some cyclically appearing metabolic toxins such as the menotoxin of Macht, or a transient hyperestrogenemia or both The high frequency of coincident nutritional anemia and migraine is suggestive of some underlying constitutional factor The authors treated 67 patients with enteric coated ammonium nitrate, 1 0 Gm three times a day for approximately 10 days premenstrually Sixty-one of the patients responded with almost complete control of their symptoms Improvement was noticeable during the first month of therapy and usually reached a maximum after two or three months Symptoms tended to recur on discontinuance of therapy The diuretic therapy was much less effective if applied after the onset of symptoms of intoxication, as observed in those patients who were too forgetful to start their medication in advance of each recurrent episode In those instances where menstruation was irregular, administration of the ammonium nitrate was prescribed to start ten days before the expected date of the next period assuming the shortest cycle for the particular patient and then continued until menstruation actually started A liberal fluid intake was encouraged Many of these patients had been taking little water The great improvement in symptoms by simple diuresis, induced by ammonium nitrate, supports the idea that this symptom complex is an intoxication The nitrate rather than the chloride salt of ammonium is employed because of its greater diuretic efficiency and it does not increase the chloride content of the tissues

Acute Hyperparathyroidism —Waife points out that, although hyperparathyroidism is always thought to be a chronic disease, it can be an acute and often fatal disease He presents histories of 5 cases, 3 of which he regards as "primary" One of the patients died in the early stage, one had the gland removed but not until irreversible renal damage occurred and the third had a parathyroidectomy before renal damage occurred The other 2 may be regarded as "secondary" to advanced nephritis In the "classic" cases of acute hyperparathyroidism, in a middle-aged man or woman, who may have had a previous history of gastrointestinal disturbances, epigastric pains, persistent vomiting and constipation quickly develop There is weakness and apathy Weight loss occurs if the symptoms last long enough The clinical impression may be that of a duodenal ulcer, but, even though a duodenal deformity may be present, achlorhydria is likely to be present In spite, or perhaps because, of an ulcer regimen, the course is progressive Fever and azotemia occur The blood pressure often ranges from upper normal to frank hypertension Moderate albuminuria is found The serum calcium is usually greatly increased in the primary type, but the serum inorganic phosphorus may be normal Roentgen examination of the kidneys may show a diffuse mottled calcification On autopsy, there are likely to be calcium deposits in the renal tubules (nephrocalcinosis) as well as in the gastric mucosa, alveolar tissue, myocardium and elsewhere Frequently an adenoma of the parathyroid gland is found, but other cases may show diffuse hyperplasia Early recognition of the acute form of hyperparathyroidism is important, because only surgical removal of the offending gland can prevent the almost inevitable tragic outcome

Institutional Outbreak of Acute Infectious Lymphocytosis —The occurrence of an epidemic of acute infectious lymphocytosis in a large institution caring for approximately 1,400 mentally defective and epileptic patients gave Barnes and his associates an opportunity to study this disorder They report the results of various studies and the clinical course in 86 of the inmates and 1 employee The epidemic demonstrated three characteristic features great infectivity, paucity of significant symptoms and physical signs and a relatively uniform hematologic picture In the two cottages that were most closely followed over 50 per cent of the exposed persons contracted the disease The outstanding features were the changes in the blood Leukocytosis due to an increase in the number of lymphocytes was found in all cases The lymphocytosis was always striking, with lymphocytes ranging between 60 and 93 per cent at the height of the disease The leukocytic response differed in adults and children The average white cell peak for the 14 adults was 25,600 per cu mm, contrasted with an average of 47,000 for the 23 children This was true also of the lymphocytosis in which the average highest absolute value for the adults was 16,000 and for the children 34,000 An absolute eosinophilia was observed in all the cases Mazzini serologic tests were done on 38 patients, and results were all negative Results of heterophil agglutination tests (Paul-Bunnell) performed on the same patients were also negative Nineteen subjects were examined for cold agglutinins, only 2 showed elevated titers Stool examinations for ova and parasites in 12 patients were negative, except for 2 whose stools contained Oxyuris vermicularis ova Skin tests for Trichinella spiralis on the 15 patients exhibiting the most pronounced eosinophilia showed only one with a positive reaction There was no evidence that the clinical course of the disease was in any way affected by sulfadiazine or penicillin The treatment was entirely symptomatic All patients made an uneventful recovery

American Journal of Physiology, Baltimore

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Am J Roentgenol & Rad Therapy, Springfield, Ill

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Archives of Ophthalmology, Chicago

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Effects of Experimental Retinal Anemia in Rats W Turnbull —p 9
Flakes of Iris Pigment on Posterior Surface of Cornea Following Cataract Extraction W S Atkinson —p 32
Use of Di Isopropyl Fluorophosphate (DFP) in Treatment of Glaucoma W C Stone —p 36
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Pericentral Ring Scotoma M R Stoll —p 66
New Foreign Body Instruments and Their Use W H Howard —p 92
*Migraine and Its Ocular Manifestations H C Donahue —p 96

Migraine and Its Ocular Manifestations —Donahue reviewed over 1,600 cases of migraine Visual disorders with scintillating scotomas and fortification spectrums occurred in 54 per cent of the cases, such auras are supposedly due to cortical malfunction produced by cerebral anoxemia There were 296 cases of paralysis of the ocular muscles Pupillary disturbances were reported in many forms, a unilateral fixed dilated pupil was reported in 76 cases A unilateral dilated pupil reacting to light occurred in 49 cases Hippus was reported in 3 cases, and inequality in pupils was noted in 423 Unilateral blindness, transient amaurosis and obstruction or thrombosis of the retinal vessels have been described Edema of the retina and retinal hemorrhage were recorded in numerous cases being reversible in all Ocular abnormalities of diverse types are common in the course of migraine Explanation of many of them is still lacking

Archives of Surgery, Chicago

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Intraperitoneal Drip for Postoperative Administration of Fluids Preliminary Report J K Narat A F Cipolla J P Cangelosi and A L Vincenti —p 102
*Treatment of Chronic Osteomyelitis with Penicillin and Primary Closure of Operative Wounds L G Howard D G Anderson K Christophe and others —p 112
*Streptomycin in Chronic Traumatic Osteomyelitis W S Smith and J B Ganey —p 125
*Identification of Toxin of Clostridium Organisms in Experimental Intestinal Obstruction R E Anderson and C A Tanturi —p 143
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Heterotopic Pancreatic Tissue and Gastric Mucosa in Meckel s Diverticulum R Bigelow and D E Clark —p 157
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Tumors of Bone and Synovial Membrane. H W Meyerding F L Flashman R D Mussey Jr and others —p 170
Review of Urologic Surgery A J Scholl F Hinman E Crowley and others —p 182

Acute Appendicitis Factors Contributing to a Decrease in Mortality—According to Slattery and co workers the present decade has witnessed a spectacular drop in the mortality rate of acute appendicitis There were 14,113 fatalities due to appendicitis in the United States in 1939, while in 1946 there were only 5 285 The authors review 952 cases of acute appendicitis treated in the Fourth Surgical Division of Bellevue Hospital during the twenty year period 1928-1947 During these years a progressive decline in morbidity and mortality became evident The greatest single factor in the reduction of mortality has been the greater number of patients seen in the early stages of the disease Public health education and increased alertness of the medical profession are responsible for much of this improvement The sulfonamide compounds and antibiotics have contributed to the decrease in deaths due to postoperative peritonitis and a diminution of complications secondary to infection The increased use of the McBurney incision and the decreased use of drains are not clearcut factors in the reduction of mortality

Penicillin and Primary Closure in Chronic Osteomyelitis—Howard and his collaborators used penicillin without surgical intervention in 32 patients with chronic osteomyelitis and with surgical intervention and primary closure in 55 patients The results in the 32 patients appeared satisfactory at first, but many patients had relapses and the end results were unsatisfactory in the majority of the cases In 55 cases surgical intervention and primary closure were delayed until there was an adequate concentration of the drug to minimize spread of the disease. Methylene blue was injected into sinuses to facilitate complete excision, after which the wound was irrigated with isotonic sodium chloride solution and suction apparatus was utilized to remove this and all bone sand One or more fine soft rubber catheters were inserted into the deeper portions of the bone and wound cavity and sutured to the skin for postoperative administration of penicillin (not for drainage) The wound was closed A sterile dressing was applied, with catheters protruding The ends of the catheters were clamped and covered with sterile gauze Penicillin reached the operative area continuously through the capillary bed as the result of systemic administration and intermittently as it was injected through the catheters The usual postoperative supportive treatment was given, 25,000 to 50 000 units of penicillin was immediately injected into the catheters, and this was repeated two or three times daily until they were removed, between the tenth and fourteenth days Eighty-one operations were performed on 60 bones in 55 patients The symptoms were arrested in 59 of the 60 bones

Streptomycin in Chronic Traumatic Osteomyelitis—According to Smith and Ganey chronic traumatic osteomyelitis following injuries of long bones was one of the most serious problems confronting the army hospitals after the cessation of hostilities Over 300 patients with chronic osteomyelitis were treated at Oliver General Hospital from Oct 1, 1946 to Jan 1, 1948 The authors sought to evaluate the effectiveness of streptomycin with or without the combination of penicillin in 26 cases of united fractures Four cases of infection following bone graft and 1 case of chronic hematogenous osteomyelitis were also added. Earlier experience with intramuscular injection of streptomycin having proved the desirability of high local levels, the authors administered the drug locally by continuous drip First 1 000,000 units of streptomycin were placed in 1,000 cc of isotonic sodium chloride solution The preparation was allowed to drip into the wound continuously over a twelve hour period daily The dosage was increased to 2,000 000 and then 4,000 000 units of streptomycin daily until a pronounced clinical effect was noted Since mixed infections with both streptomycin and penicillin-sensitive organisms were found to be relatively common, penicillin was sometimes given in addition in doses of 1,000,000 units per thousand cubic centimeters of isotonic sodium chloride solution The choice of the drug or of the combination of drugs depended on wound cultures, and in no instance was either streptomycin or penicillin employed unless it was indicated by the culture. In 20 of the 31 cases streptomycin was administered only parenterally, the results were good in 7 and fair in 5, but in the remaining 8 cases they were either poor or questionable Eleven patients were treated with combined continuous local administration of streptomycin and penicillin and parenteral administration of streptomycin, in 7 of these the results were good, in 3 fair and in 1 the treatment failed

Identification of Toxin of Clostridium in Intestinal Obstruction—Anderson and Tanturi say that recent studies indicate that the toxemia in experimental appendicitis results from the absorption of the toxin of Clostridium organisms into the general circulation Studies were undertaken to identify the Clostridium toxin from the lumen of a strangulated small intestine in dogs Samples of abdominal exudate, present with such an obstruction, were also analyzed for the enzyme. Antitoxic properties of the serum of dogs which had recovered from experimental appendical peritonitis were studied in order to substantiate the thought expressed earlier by the authors that commercially prepared polyvalent gas gangrene antitoxin does not inhibit the enzymatic action of Clostridium toxin in dogs with the same specificity as does serum obtained from convalescent experimental animals The shortest period after which the strangulated intestine and exudate were removed was three hours Lecithinase could not be identified in the animal, although the bowel appeared black and dilated Another dog was reoperated on at three hours and forty-five minutes, but toxin could not be identified A positive identification of lecithinase from the intraluminal contents of strangulated ileum was first made five hours after the strangulation had been produced Twelve animals were reoperated on in the period between five and twenty-four hours after strangulation Lecithinase the lethal factor of the toxin of the organisms of the Clostridium group, was identified in the contents of the lumen of 11 of the 12 dogs with obstructed, strangulated small intestine This toxin was identified in the abdominal exudate present with such an obstruction in one third of the cases when gross perforation of the obstructed segment had not occurred It was possible to demonstrate the inability of commercial polyvalent gas gangrene antitoxin to inhibit the hydrolysis of lecithin by the toxin of the Clostridium organisms harbored in the dog Serum taken from dogs which have recovered from gangrenous intraperitoneal lesions prevents the hydrolysis of lecithin by the lecithinase identified in obstructed, strangulated small intestine in dogs This convalescent *serum also inhibits the hydrolysis of* lecithin by standard Clostridium welchii toxin

Canadian J of Research, Medical Sciences, Ottawa

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Interfacial Precipitation of Cholesterol in Human and "Artificial" Biles P Fitz *James and* A C *Burton —p 309*

Production of Acute Massive Hepatic Necrosis in Rats by *Dietary Means* M R Abell and J M R Beveridge —p 316

Effect of Surgical Operations on Excretion of Iodine, Corticosteroids, and Uric Acid W F Perry and J P Gemmell —p 320

Cholinesterases of Cerebrospinal Fluid Data for Normal Fluids and Fluids from Patients with Syphilis, Meningitis, or Poliomyelitis K G Colling and R J Rossiter —p 327

Some Observations on Interference Between Neurotropic Viruses A J Rhodes and M Chapman —p 341

**Effects of Ascorbic Acid on Several Biologic Variables Normally Affected* by Cold M Therien, J Leblanc, O Heroux and L P Dugal —p 348

Effects of Ascorbic Acid and Exposure to Cold — Therien and his associates investigated the effect of ascorbic acid *on the biologic changes normally* associated with the hypertrophy of the adrenals during exposure to cold They found that ascorbic acid partly inhibits the thymus atrophy normally encountered on exposure to any stress, *including* cold It accelerates the enlargement *of the* thyroid It is responsible for an increase in the weight of the spleen, whereas the control animals showed a decrease in the weight of the same organ The histamine content of the adrenals, which increases at room temperature under the *influence* of ascorbic acid, is significantly decreased during exposure to cold under the influence of the same substance The activity of *the adrenals, far from* being inhibited by ascorbic acid, is even increased if the cholesterol changes are taken as an index of that activity The initial hypotension due to cold, found in the controls, is prevented by large doses of ascorbic acid If hypertension develops after long exposure to cold, the subsequent administration of large doses of ascorbic acid restores the blood pressure to normal Confirmation has been obtained for the previously reported observation that ascorbic acid prevents the hypertrophy of the adrenals during exposure to cold

Canadian Medical Association Journal, Montreal

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*Effect of ACTH and Cortisone upon 'Anaphylactoid Reaction ' H Selye —p 553

*Extensive Outbreaks of Staphylococcal Infections in Maternity Units (Use of Bacteriophage Typing in Investigation and Control) J C Colbeck —p 557

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Follow Up on Lumbar Disc Lesions O S Waugh, H F Cameron, H G Scarrow and J C Howarth —p 607

Diagnosis of Pulmonary Emphysema A Bogoch and J E Walker —p 611

Pituitary Adrenal Corticotropic Hormone and Cortisone —Experiments on rats by Selye demonstrated that cortisone (a glucocorticoid compound) and purified pituitary adrenal corticotropic hormone inhibit the anaphylactoid reaction of the rat to the parenteral administration of egg white Desoxycorticosterone acetate (a mineralocorticoid compound) and lyophilized anterior pituitary, a highly corticotropic impure anterior pituitary preparation, failed to inhibit, and tended to aggravate, this reaction These observations illustrate the possible clinical implications of the author's concept of "diseases of adaptation" on the therapy of these diseases According to this concept, rheumatic and rheumatoid conditions, allergic anaphylactic phenomena, *certain* hypertensive diseases and nephrosclerosis may largely depend on a derangement of the pituitary adrenal cortex response to stress, a derangement in which the pattern of *corticoid secretion is abnormal* The assumption of a pathogenic relationship between the adrenal cortex and the allergic rheumatoid and other collagen diseases received strong support from recent clinical observations showing that adrenal cortex extracts which are rich in glucocorticoids and especially cortisone, produce beneficial effects in patients with chronic rheumatoid arthritis Purified pituitary adrenal corticotropic hormone likewise proved effective in rheumatoid arthritis as well as in acute rheumatic fever and allied collagen diseases, such as lupus erythematosus

Staphylococcic Infections in Maternity Units —Colbeck reports a sudden increase in the number of cases of breast abscesses in mothers, associated with an outbreak of pustular skin lesions in the babies, *in the maternity units of three general* hospitals in Winnipeg, Canada, during the fall of 1947 In the spring of 1949, another similar outbreak, in spite of the previous enforcement of every recognized method of control, was observed in a fourth large hospital, *which had previously* been free of infection Bacteriophage typing showed that the majority of the breast abscesses and other infections in the affected hospitals were due to Staphylococcus aureus of a particular type (phage "W" *positive strains) or at least belonging to a* certain group There was a considerable number of carriers of this organism among the staff of the three hospitals first affected by the epidemic, but on the date when the swabbings *of these staff members took place, two carriers of this type were* observed among the staff of the fourth hospital which was not affected by the epidemic until eight months later The percentage of carriers among the staff of this fourth hospital was not significantly greater when later the outbreak occurred The 2 carriers found on the occasion before the outbreak of breast abscesses at this hospital were employed in the mother's ward and not in the nursery Of the 3 carriers found at the beginning of the outbreak, one was a nurse in charge of the nursery and another was the consultant pediatrician It is suggested that, whereas on the first occasion the susceptible infants were not exposed, on the second occasion they became infected from these 2 members of the staff Only 2 7 per cent of mothers showed the pathogenic Staphylococcus on discharge from hospital at the height of the outbreak, when results of tests were positive in 26 per cent of the babies This low incidence in the mothers was probably due to the small amount of contact between the mother and baby in hospital Nose and throat swabs from mothers after their return home showed a great increase in the number of phage "W" carriers The newborn infant's nose and throat is the most important reservoir of infection, from which infection is passed to the mother's breast The initial stage of the epidemic is that of a respiratory infection Every effort should be made to prevent air-borne infection of the babies Prevention of puerperal breast abscesses during an outbreak should include active treatment of the infants with antibiotics or other means in order to prevent spread to the mother

Illinois Medical Journal, Chicago

97 1-52 (Jan) 1950

*Pulmonary Tuberculosis in Children Treated with Streptomycin E F McEnery H C Sweany and G C Turner —p 15

Acute Intestinal *Obstruction* A M Vaughn —p 20

How Does Malaria Interest *the Practitioner in* Illinois? W A. Sodeman —p 24

Dyslexia From Physical Viewpoint G E Park —p 30

Obesity Diagnostic, Therapeutic, and Nursing Difficulties W B Smith —p 36

Thoracopagus Vaginal Delivery Without Destructive Operation I Siegel —p 40

Bullous Emphysema and Asthma M M Mosko and J O Baugher —p 43

Pulmonary Tuberculosis in Children Treated with Streptomycin —McEnery and his associates of the clinical and research departments of the Chicago Municipal Tuberculosis Sanatorium say that, by a special order of the Board, in Novem ber 1947 all streptomycin was furnished free to patients for whom the Medical Board considered the treatment indicated The cases were under observation for two to thirty-six months Each child's history was reviewed by a 'streptomycin board' for evaluation and suggestions as to the plan of streptomycin therapy All patients accepted for streptomycin treatment had positive sputums from either gastric washings or bronchoscopic aspirations, and results of Mantoux tests were positive All the roentgenograms revealed lung infiltration usually of an advanced degree In the beginning of this study the majority of the patients received 0 5 Gm in divided doses, twice daily This was reduced to 0 3 Gm once daily for all children Sixteen of the 25 patients were given the drug for 120 days, 9 were treated for 60 days The treatment lessened or counteracted the toxic manifestations Improvement usually became apparent within a few days after the treatment was begun It reversed the general downward course of the disease Improvement in the physical findings was demonstrable in 30 to 60 days after treatment was begun Decreased roentgenologic findings followed the improvement in the clinical picture Sputum conversion was completed in four to five months in 89 per cent of progressive primary lesions The hospital stay was uniformly reduced from about two to three years to six to eight months

Iowa State Medical Society Journal, Des Moines

40 1-46 (Jan) 1950

Prolonged Labor W F Mengert —p 1
Electrocardiogram and Standard Exercise Test in Coronary Insufficiency L E January and T G Coleman —p 3
Immediate and Early Plastic Closure of Open Wounds and Raw Surfaces J M Bruner —p 7
General Considerations of Maxillofacial Surgery D F Ward —p 9
Report of Case of Acute Yellow Atrophy in Pregnancy with Recovery D C Sharpe —p 11

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Hemangioma of Liver F W Preston and J T Priestley —p 47
Progress in *Treatment of* Blood Dyscrasias W M Fowler —p 51
Multiple Intussusception Review of Literature and Report of Case. M J Brown and D F Weaver —p 57
Retrolental Fibroplasia A H Downing —p 60
Neurogenic Vesical Dysfunction C W Latchem —p 65

Journal of Aviation Medicine, St Paul

20 381-474 (Dec) 1949

Aero Medical Problems of Space Travel Panel Meeting School of Aviation Medicine H Armstrong H Haber and H Strughold —p 383
*Hearing of *Airline Pilots* Ten Year Study K M Simonton —p 418
Protection Afforded Cerebrovascular System by Cerebrospinal Fluid Under Stress of Negative G E L. Beckman —p 430
Cybernetics and Aviation Medicine P A Campbell —p 439
Safe Parachute Descent—An Unsolved Problem H A *Smedal and* A P Webster —p 443
Toxic Cases and Civil Aircraft C R Spealman.—p 448
New Human Centrifuge. R L. Christy —p 454
Follow Up Study of Psychiatric Cases Which Occurred in AAF Combat Personnel W A Carlson —p 459

Hearing of Airline Pilots —Simonton found in his study of the audiograms of 47 airline pilots taken at intervals of ten years loss of hearing of 36 amounted to 15 or more decibels in one or more frequencies The majority of these losses were recorded for frequencies of 4 096 cycles per second or higher Nine pilots had a loss of 15 or more decibels in the frequencies of normal speech that is 512 to 2 048 cycles per second Four pilots had a final threshold of hearing which was greater than 30 decibels for one or more of the frequencies of speech in one or both ears He concluded that the data obtained confirm the opinion of other authors that loss of hearing attributable to flight is not a serious problem The data also suggest that an individual pure tone audiogram may form the basis for an estimate of future hearing loss The threshold audiogram taken in quiet surroundings is not a good index of the efficiency of the pilot s hearing when in flight Tests of hearing for the spoken voice and directional radio beam delivered by earphones and conducted against a background of noise simulating that present in the cockpit of an airplane in flight would be a more effective method of estimating the efficiency of a pilot s hearing under flight conditions

Puerto Rico J Pub Health & Trop Med, San Juan

25 153-290 (Dec.) 1949

Biological Studies on Miracidium of Schistosoma Mansoni II Behavior of Unhatched Miracidium in Undiluted Stools Under Diverse Environmental Conditions J F Maldonado J Acosta Matienzo and C J Thillet —p 153
Studies on the Genus Salmonella I Antigenic Studies by Precipitation Reaction L M González P Morales Otero and O Felsenfeld —p [illegible]
Schistosoma Mansoni Infection Resulting from Exposure to Cercariae Proceeding from Single, Naturally Infected Snails J F Maldonado and F Vélez Herrera —p 230
Evaluation of Therapeutic Effectiveness of Fuadin and Anthiomaline in Treatment of Manson s Schistosomiasis F Hernández Morales D Santiago Stevenson J Oliver Gonzalez and J F Maldonado —p 256

Radiology, Syracuse, N Y

53 781-936 (Dec.) 1949

Congenital Obstructions of Alimentary Tract in Infants and Children Errors of Rotation of Midgut F N Silverman and J Caffey —p 781
*Reliability of Roentgen Examination in Hypertrophic Pyloric Stenosis in Infants. H W Hefke —p 789
Pneumonia in Children Following Ingestion of Petroleum Products C H Heacock —p 793
Radiology in Neurosurgical Conditions in Childhood N Gotten and C D Hawkes —p 798
Pathogenesis of Bronchiectasis Roentgen Contribution F G Fleischner —p 818
Roentgen Findings in Sickle Cell Anemia. D S Carroll and J W Evans —p 834
Rapid Automatic Serialization of X Ray Exposures by Rapidograph Utilizing Roll Film Nine and One Half Inches Wide W G Scott and S Moore —p 846
Retrograde Aortography Its Value in Diagnosis of Coarctation of Aorta by Means of New Indirect Sign R Pereiras and A Castellanos —p 859
Depth Dose of Electrons from Betatron L S Skaggs —p 868

Hypertrophic Pyloric Stenosis in Infants —Hefke reports on 210 patients in whom the roentgen diagnosis of hypertrophic pyloric stenosis was made at the Milwaukee Children s Hospital during the decade of 1938 to 1948 The roentgen diagnosis was confirmed in 203 of the 205 patients on whom operation was performed for pyloric stenosis The so-called pyloric string sign, i e. the demonstration of the narrowed elongated pyloric canal, observed as a thin streak of barium, 1 5 to 2.5 cm long in the prepyloric region of the stomach, proved the most reliable roentgen sign A stringlike roentgen ray appearance of the second and third portions of the duodenum was wrongly interpreted as the pyloric string sign in the remaining 2 cases A delay of the pyloric opening to more than 30 minutes is in itself, without demonstration of the pyloric string sign sufficient for the correct diagnosis A tumor was revealed by surgical intervention in only 1 of 150 cases in which the clinician considered the diagnosis of pyloric stenosis but in which the roentgen observations were normal The roentgen examination is superior to the clinical examination and should be used more extensively, particularly in early or doubtful cases

South Dakota Journal of Medicine, Sioux Falls

2 357-396 (Dec.) 1949

Treatment of Congestive Heart Failure G G Spellman —p 357
Cooperative Movement in Medicine C H Crownhart —p 360
Extracts of Molds Grown on Synthetic Media F W Bieberdorf and J W Argabrite —p 365
Thirty Five Years Experience in Giving of Blood Transfusions G E Van Demark.—p 372

Yale Journal of Biology and Medicine, New Haven

22 199-302 (Jan) 1950

Preventive Medicine at Yale University School of Medicine, 1940-49 J R Paul —p 199
Observations on Role of Vagal Activity in Effects of Pulmonary Embolism J H Cort and G D Davis —p 213
Witch s Milk and Witches Marks T R Forbes —p 219
Metabolic Response of Infants to Heat Stress R E Cooke E L Pratt and D C Darrow —p 227
Gas Exchange in Lung Deprived of Pulmonary Arterial Supply W Harrison and A A Liebow —p 251
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FOREIGN

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Archives of Disease in Childhood, London

24 237-318 (Dec) 1949

Treatment of Diabetes in Childhood A Lichtenstein —p 237
Studies in Coeliac Disease Fat Absorption W Sheldon and A MacMahon —p 245
Protein Requirements of Infants 2 Marasmus W F Young, E A Bishop, E M Hickmans and Y J Williams —p 250
*Diagnostic Value of Cardiac Catheterization in Isolated Pulmonary Stenosis and Large Interventricular Septal Defects E Mannheimer —p 264
*Symmetrical Cortical Necrosis of Kidneys in Infancy and Childhood A C P Campbell and J L Henderson —p 269
Miliary Sebaceous Cysts and Blisters in Healthy Newborn I Gordon —p 286
Study of Ten Children After Treatment with Streptomycin for Tuberculous Meningitis J Lorber —p 289
Physical and Mental Development of Children with Congenital Heart Disease M Campbell and G Reynolds —p 294
Congenital Toxoplasmosis Report of 2 Cases J H Hutchison —p 303
Complete Auriculo Ventricular Heart Block in Foetus and Newborn I D Riley —p 309

Diagnostic Value of Cardiac Catheterization —Mannheimer reports on heart catheterization in isolated congenital pulmonary stenosis without an overriding aorta and in large interventricular septal defects His group studied 7 cases of isolated pulmonary stenosis during the last two years The condition in these 7 cases differs from the earlier conception of this disease In this type there is no cyanosis and the symptoms are so mild that the affected persons can live a normal life There is no retardation in growth and only slight limitation of activity The diagnosis is made entirely by cardiac catheterization What was previously regarded as idiopathic pulmonary dilatation may actually be isolated pulmonary stenosis with poststenotic dilatation In all 3 cases of interventricular septal defect reviewed in this report the clinical diagnosis had been interauricular septal defect Cardiac catheterization in 1 of the 3 revealed a patent ductus with a decided difference in oxygen content between the pulmonary artery and right ventricle, indicating a left to right extracardiac shunt through the ductus In the second patient the slight cyanosis and the retarded physical development indicated the same diagnosis Catheterization, however, revealed a huge ventricular septal defect, with an enormous left to right shunt of about 80 per cent Thus this heart functioned as a cor triloculare with a common ventricle, the oxygen content of the right ventricle and that of the femoral artery being almost equal This case shows how difficult or even impossible it is to make the correct diagnosis in vivo without catheterization Calculation of the flows and the shunt from the differences in oxygen content reveals that the pulmonary flow is five times as great as the systemic flow In other words, of the amount of blood coming from the lungs and reaching the left side of the heart, 80 per cent is shunted into the right ventricle and out into the pulmonary artery again During systole both ventricles communicate In the third case the clinical picture was the same, the shunt was also very large, but the pressure in the lesser circulation was normal This suggests that the interventricular septal defect did not function during systole

Symmetric Cortical Necrosis of Kidney in Childhood —According to Campbell and Henderson only 9 cases of bilateral cortical necrosis of the kidneys occurring in children under 15 years of age are recorded in medical literature They report 4 cases of their own Two of these occurred in infants They are of interest since the disease has never before been reported in infancy The 4 cases had a fatal outcome Necropsy reports are presented along with clinical histories The symptoms were essentially the same as in adults Infection was a feature in 9 of the 13 cases, and it may have been present in some of the other 4 Severe acute parenteral infection was a feature in 5 patients, 3 had acute hemolytic streptococcic infection 1 had pneumonia and 1 had pneumonia followed by empyema Acute rhinopharyngitis was observed in 1 of the 4 reported cases Chronic infection in the form of tuberculosis was a feature in 2 cases One had a pulmonary infection and the other an intestinal infection Infective enteritis was presumed in 3 of the 13 patients Attention was first drawn to the urinary abnormality by the development of oliguria, anuria or hematuria Anuric or oliguric renal failure is the predominant feature. The occurrence of vascular disturbances in other parts of the splanchnic vascular bed, notably in the bowel, is emphasized Diarrhea, with or without passage of blood, is a frequent symptom The renal lesion is regarded as the predominant feature of a splanchnic vasospastic syndrome

British Medical Journal, London

1 1-80 (Jan 7) 1950

Advances in Medicinal Therapeutics H H Dale —p 1
Surgery 1900 1950 G Jefferson —p 8
Fifty Years of Midwifery R W Johnstone —p 12
Fifty Years of Medical Research and Practice H Cohen —p 16
Fifty Years of Clinical Pathology L Whitby —p 21
Prevention and Control of Infection R Cruickshank —p 25
Development of Psychological Medicine J Rickman —p 30
Fifty Years of Tropical Medicine J S K. Boyd —p 37
Fifty Years of Radiology S C Shanks —p 44
Fifty Years of Public Health Legislation A S MacNalty —p 48
Fifty Years of Progress as Shown by Vital Statistics P Stocks —p 54
Medical Progress from 1850 to 1900 C Singer —p 57

Journal of Physiology, Cambridge

110 1-248 (Dec) 1949 **Partial Index**

Mechanics of Semicircular Canal A A J van Egmond, J J Groen and L B W Jongkees —p 1
Factors Determining Time Course of Rigor Mortis E C Bate Smith and J R Bendall —p 47
Variability of Vital Capacity of Normal Human Subject J N Mills —p 76
Influence of Abdominal Distension upon Vital Capacity J N Mills —p 83
Action of Potassium Ions on Brain Metabolism K C Dixon —p 87
Nicotinic Action of Substances Supposed to Be Purely Smooth Muscle Stimulating N Ambache —p 145
Actions of Noradrenaline Adrenaline and Isopropyl Noradrenaline on Arterial Blood Pressure Heart Rate and Muscle Blood Flow in Man H Barcroft and H Konzett —p 194
Influence upon Vital Capacity of Procedures Calculated to Alter Volume of Blood in Lungs J N Mills —p 207

J Royal Inst Public Health and Hygiene, London

13 1-36 (Jan) 1950

*Popular Fallacies Regarding Human Nutrition H E Magee —p 11
Food Utensil Sanitation L E Thomas —p 17

Popular Fallacies Regarding Nutrition —Magee shows that two new discoveries in nutrition, the biologic value of proteins and the vitamins, have led to some wrong appraisals The notion gradually developed that animal protein is the only protein essential in practical dietetics Animal protein is desirable because it contains all the 10 essential amino acids However, the precise amount of animal protein it is desirable to take is not known Most persons regard meat as a food which is nearly all protein, but about 60 or 70 per cent of it consists of water and the protein content is rarely as high as 20 per cent Bread has 37 per cent water and about 8 5 per cent protein and, weight for weight, has almost the same energy value as roast beef The discovery of the vitamins aroused so much interest that there has been a tendency toward overemphasis To many the main criterion of the goodness of food is its content of vitamins and some seem to think that, because a little is good for one, then a lot will be much better There is no experimental evidence to show that healthy persons would benefit by taking vitamins over and above their ordinary requirements Since 1939 calories have come more and more prominently before the public Some persons seem to think that calories are a synonym for food and that they eat calories It should be understood that one derives energy from proteins, fats and carbohydrates and expresses energy as calories Some persons believe that carbohydrates are of little nutritional use It is starch that is especially criticized, and potatoes, bread and other cereal foods rich in starch are often subjected to scorn as ‘starchy foods If sugar were condemned there would be much more justification, for sugar is the most unbalanced of all foods commonly eaten by civilized man It is devoid of vitamins minerals and protein Starch in natural foods like potatoes and bread is always accompanied with significant amounts of protein, mineral substances and vitamins The author comments on the mistaken idea that the fat of milk is the only constituent of nutritional importance Milk contains some of each nutrient the body requires for its proper nutrition Milk proteins are the most valuable of all forms of protein, and the mineral salts are easily made use of by the body and are present in properly balanced amounts Vitamins A and D are present in the fat, so that when milk is skimmed the bulk of the fat and of these two vitamins are removed, all the other nutrients, however, remain in the skimmed milk

Lancet, London

1 1-52 (Jan 7) 1950

Auguries Signs and Portents of Surgery C Wakeley —p 1
Primary Umbilical Sepsis in the Adult Report of 7 Cases G W V Greig and H S Shucksmith —p 4
Diphtheria Immunisation in Young Babies Study of Factors Involved M Barr A T Glenny and K. J Randall —p 6
*Pituitary Adrenocorticotropic Hormone (ACTH) as Tool of Clinical and Laboratory Research T D Spies and R E Stone.—p 11
Comparative Serum Testing with Cardiolipin and Standard Wassermann Antigens Review of 5 124 Tests I N O Price and A E. Wilkinson —p 14
Chloromycetin in Scrub Typhus H McC Giles and T Symington —p 16
*Hirschsprung s Disease M Bodian F D Stephens and B C H Ward —p 19
Passage of Intestinal Tube per Anum G Frank.—p 22
Swallowed Bougie. J A. Ross —p 22

Pituitary Adrenocorticotropic Hormone (ACTH) — Spies and Stone believe that pituitary adrenocorticotropic hormone (ACTH) acts through a fundamental biochemical system of the body, with the result that the metabolism of all the cells is affected The cases described in this paper demonstrated that repeated intramuscular injections of 25 mg of ACTH were well tolerated during a short period of administration There was prompt relief of symptoms in 5 patients with rheumatoid arthritis, 3 with gout, 1 with rheumatoid arthritis and psoriasis and 1 with rheumatoid arthritis, asthma, hay fever, urticaria and chronic eosinophilia of unknown origin Amelioration of the symptoms and disappearance of swelling and tenderness of the joints in the patients with rheumatoid arthritis and those with gout began on the first or second day of therapy There was a sharp decrease in the circulating eosinophils within four hours The patients with rheumatoid arthritis relapsed within three to 14 days of the end of treatment. Within 96 hours after the last injection the patients had a diuresis with a loss of body weight and a decrease of blood pressure to the initial levels Seven sterols resembling cortisone in structure were administered one at a time, with little or no decrease in symptoms Each patient was then given injections of ACTH again, prompt and dramatic improvement followed The side effects included water retention with an associated gain in body weight, some increase in blood pressure and pronounced elation in some patients These studies throw no light on the mechanism by which ACTH relieves the symptoms arising from rheumatoid arthritis gout, asthma, hay fever urticaria and psoriasis or why the circulating eosinophils decrease in number after its administration They are clinical leads for experimental studies

Hirschsprung's Disease —Bodian and his associates present a new concept of the organic etiology of Hirschsprung s disease, which differentiates it from idiopathic megacolon Hirschsprung's disease, a congenital condition, may manifest itself as an acute intestinal obstruction in the newborn and, if not fatal, may have a chronic course with acute attacks Medical and surgical procedures, other than colostomy, failed to produce more than transient relief, since they were aimed at treating the hypertrophied dilated megacolon and largely disregarded the narrow segment distal to it. Histologic examination of the entire intestinal tract in fatal cases revealed complete absence of ganglion cells from the intramural plexuses of this narrow distal segment It was postulated that this would impair coördinated propulsive movement and lead to secondary hypertrophy and dilatation of the bowel proximal to the site of the lesion A new surgical technic for removal of the abnormal distal segment, rectosigmoidectomy, has been used so far in 26 children Postoperative follow-up for 12 to 15 months of the first 12 previously reported cases shows a most encouraging improvement in the children's general condition and a return to normal bowel habits Radiologic examinations also indicate considerable regressive changes in the volume of the full colon and the surface area of the collapsed colon Rectosigmoidectomy was done in 14 additional patients during 1949, with 2 deaths Nine children are making satisfactory progress, comparable with that of the former group, notwithstanding some technical errors resulting in complications in 3 cases The last three operations were too recent to be evaluated Histologic examinations in 28 consecutive cases of Hirschsprung's disease have revealed two striking structural changes in the distal "narrow ' segment of bowel (1) absence of intramural ganglion cells and (2) presence of abnormal nerve bundles in the customary site of the intramural plexuses These changes are thought to be characteristic of the condition

Medical Journal of Australia, Sydney

2 797-828 (Dec. 3) 1949

Sir Richard Stawell Oration— 'For He Had Great Possessions F K Norris —p 797
Pink Disease with Clinical Approach to Possible Aetiology R Southby —p 801
*Pertussis Immunization Comparison of Parenteral and Oral Routes in Mice D F Gray —p 807
Epidemic of Acute Laryngo Tracheo-Bronchitis in Toowoomba. R. D Spooner —p 812

Pertussis Immunization.—Experiments by Gray in mice and rabbits showed that 24 hour Bordet-Gengou cultured phase I Haemophilus pertussis vaccine is highly protective for mice when given parenterally and stimulates the formation of protective antibodies and agglutinins against phase I Haemophilus pertussis in rabbits The same vaccine, when given to mice orally, stimulates a lower but significant degree of protection which apparently cannot be greatly improved with even twentyfold doses given by this route Oral administration to rabbits did not stimulate the formation of agglutinins or protective antibodies A proprietary dissolved oral vaccine dispensed for prophylactic and therapeutic control of whooping cough failed to produce significant immunity in mice when given orally or parenterally under the experimental conditions employed. It also failed to stimulate protective antibodies or agglutinins when given by either route in rabbits The serums of 3 human volunteers to whom the dissolved oral vaccine was given were compared with the serum of a subject who was naturally immune to pertussis as the result of clinical infection followed by prolonged laboratory contact with Haemophilus pertussis phase I The dissolved oral vaccine also failed to stimulate protective antibodies or agglutinins in the human volunteers There is nothing in these results to suggest that effective immunization against pertussis infection is likely to be achieved with oral administration of any of the existing vaccines

Thorax, London

4 173-252 (Dec) 1949

Extrapleural Pneumonectomy and Pleurectomy in Pulmonary Tuberculosis I A Sarot —p 173
*Pneumonoplasty Periosteo-Plastic Pneumonolysis F R Edwards —p 224
Post Operative Course of Pneumonoplasty and Its Management J H Gifford —p 233
Death from Cerebral Air Embolism During Thoracoscopy P P Philip —p 237
Transpleural Cardioplasty in Achalasia Operation Results and Sequelae H B Wulff and A Malm —p 243

Pneumonoplasty, a Periosteoplastic Pneumolysis —Having performed some 500 thoracoplasties Edwards felt that it should be possible to produce a similar permanent collapse of the lung without the destructive changes to the thoracic cage Features that are aimed at in the collapse operations can be realized in an operation which he has termed pneumonoplasty" in preference to periosteoplastic pneumonolysis In this operation an extensive extrapleural pneumonolysis is performed the only ribs resected being the fourth and fifth The second to the sixth or seventh intercostal bundles with the rib periostea are mobilized detached posteriorly and reattached to the side of the vertebral column at a lower level The position of the bundles and periostea over the upper part of the lung is adjusted so that, when recalcification occurs reexpansion of the lung is prevented Before this recalcification the lung is held down by the liquid which collects in the extrapleural space, and if absorption of this liquid is too rapid, temporary air refills are established. Bailey in 1941 described an operation which he called extrapeniosteal pneumonolysis and which had certain similar features, but Bailey did not free the lung anteriorly, nor was any attempt made to reattach the posterior ends of the bundles at a lower level Edwards describes his surgical technic and gives an account of the results obtained in the first 37 patients in whom his operation was performed Primary sputum conversion was obtained in 28 of the patients, and in 2 additional patients it resulted subsequently The operation has the advantage of being a one stage, permanent collapse operation, which causes no visible deformity and utilizes body tissues only

Transactions Royal Soc Trop Med and Hyg, London

43 239-350 (Nov) 1949 **Partial Index**

Malaria Among Prisoners of War in Siam, ("F" Force) T Wilson and J A Reid —p 257
Studies on Protozoa Part I Metabolism of Leishman Donovan Bodies and Flagellates of Leishmania Donovani J D Fulton and L P *Joyner* —p *273*
*Role of Fat Ingested in Diet in Incidence of Sprue J C Gilroy —p *303*
Observations on Haemoglobin Values in African Children E A Beet —p 317
Insulin Hypersensitivity in Pellagrins and Its Significance F Mainzer —p 329
Cerebellar Aspect of Nutritional Spinal Ataxia T J Danaraj —p 343

Fat in Diet and Incidence of Sprue —Gilroy calls attention to the enormous increase in the incidence of sprue among troops in India and the Far East and contrasts this with the virtual absence of sprue among prisoners of war in Japanese hands, who were living under greater hardship and were suffering from more dysentery and intestinal infections than the soldier in the field Sprue did not develop in these prisoners when they were repatriated and had a diet with a normal fat content The difference in the incidence of sprue between these two groups is attributed to the difference in the dietary fat intake of the two groups It is suggested that qualitative changes in fat metabolism which may be a personal idiosyncrasy, may be important in determining the incidence of the disease Sprue is described as comprising a predeficiency stage and a stage of conditioned deficiencies of the vitamin B complex It is concluded that intestinal infections are an important factor in precipitating the predeficiency stage but that the disease will not enter the deficiency stage if the diet contains no fat

Acta Medica Scandinavica, Stockholm

134 389-468 (Nov 7) 1949 **Partial Index**

Significance of Mountain Climate in Treatment of Bronchial Asthma F Dencker —p 389
Sequelae of Mumps Meningoencephalitis A Oldfelt —p 405
*Therapeutic Results of Massive 'Sternosternal' Transfusions in Certain Cases of Medullary Aplasia and Acute Leukemia Preliminary *Report* E *Danopoulos* —p 415

Massive Sternosternal Transfusion in Medullary Aplasia and Acute Leukemia —Danopoulos treated 4 patients, 3 men and 1 woman with aplastic anemia, and 3 patients, 2 men and 1 woman with acute myelogenous leukemia with repeated transfusions of 20 to 60 cc of blood aspirated from the sternum of a donor and reinjected into the sternum of the patient The method is based on the concept that blood aspirated from the sternum may contain factors capable of stimulating production of various blood cells and their development into maturity Cure was obtained by this method in the first 3 patients with aplastic anemia. The anemia of the first patient was due to generalized leishmaniasis and was aggravated by treatment with ethylstibamine The second patient had syphilis, and his anemia was made worse by treatment with neoarsphenamine The third patient had idiopathic aplastic anemia The fourth patient with essential chronic aplastic anemia was given six series of sternosternal transfusions at intervals of several weeks, with five, four, three one two and three injections, respectively, by which the number of platelets was increased each time from between 20,000 and 50 000 to between 600,000 and 1,500,000 per cubic millimeter This increase no longer occurred after a seventh series of four transfusions Naegeli's leukemic hiatus disappeared from the bone marrow and from the systemic blood in 1 of the 3 patients with acute leukemia treated by sternosternal transfusions The polymorphonuclear cells were increased from 9 to 70 per cent in the systemic blood of the second of these patients, but his bone marrow remained myeloblastic Hematologic change could not be obtained in the third patient Death could not be prevented by this treatment in any of the 3 patients

Medizinische Klinik, Munich

44 1557-1588 (Dec 9) 1949 **Partial Index**

New Diagnostic Possibilities of Histologic Study of Tissues Obtained by Puncture A G Baur —p *1562*
Toxicology of Aminopyrine R Koch and A Hubner —p 1571
*Treatment of Pneumonia with Penicillin H J Jahn —p 1574

Penicillin in Therapy of Pneumonia —*Jahn* found that treatment with penicillin was effective in pneumonia and definitely superior to treatment with quinine and sulfonamide drugs Of 23 patients with severe forms of pneumonia who were treated with penicillin none died A total dose of 500,000 Oxford units was sufficient in 20 of the 23 cases Usually 25,000 units were administered at intervals of three hours Improvement in the general condition was generally evident within twenty-four hours after onset of treatment

Mycopathologia, The Hague

4 *315-420 (Aug 30) 1949* **Partial Index**

Studies of Coccidioides Immitis (Stiles) Vegetative and Fertile Mycelium P *Negroni* —p 315
Blastosporic Fungi of Sputum P *Negroni and C* A N *Daglio* —p 330
The Candida Species in the Sputum of Patients with Tuberculosis *V M* Schwarting and C E Skinner —p 349
Dependence on Weather of Incidence of Sporotrichosis. J E Mackinnon.—p 367
*Influence of Vitamins on Culture of Fungi A S von Mallinckrodt Haupt —p 394

Influence of Vitamins on Culture of Fungi —The investigations described by von Mallinckrodt-Haupt were concerned with the influence exerted by the addition of vitamins to the culture mediums of *Trichophyton gypseum*, Epidermophyton floccosum, Achorion schonleinii and other cutaneous fungi, also yeasts like Cryptococcus pararoseus and some fungi of the Actinomyces group Thiamine, riboflavin, ascorbic acid and vitamins A and D were investigated The aim of these studies was to produce an optimal culture medium and to determine differences in the vitamin requirements and thus possibly ascertain group-specific differences Addition of vitamin solutions exerted a noticeable influence on the growth buffering capacity and the formation of pigment, it also produced differences in the reaction of the culture medium Vitamins A D, C and B_1 produce acidification of the medium, whereas riboflavin produces alkalinization Beyond this, the vitamins exert effects that do not depend on acidification or alkalinization Although vitamins A and D produce an almost equal degree of acidification they effect growth in exactly opposite directions Vitamin A inhibits growth, particularly of the cutaneous fungi Vitamin D increases the growth of all fungi Thiamine promoted the growth of the dermatophytes, whereas riboflavin, which is generally regarded as the "growth" vitamin, seemed to exert no influence on the growth of fungi

Revista Medica de Chile, Santiago

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*Aneurysm of Abdominal Aorta with Perforation into Vena Cava G Dussaillant E Solari and A Etchebarne —p 692

Aneurysm of Abdominal Aorta —Dussaillant and collaborators report the case of a woman 62 years of age, who was admitted to the hospital in a state of cachexia, with acute anemia and signs of failing heart, with extensive edema suggestive of thrombosis of the inferior vena cava There was pulsation in the arteries in the neck The Duroziez murmur was audible at the femoral artery and the lower epigastric region which was the seat of a pulsating tumor A diagnosis of aortic aneurysm with perforation into the inferior vena cava was made The electrocardiogram showed preponderance of the left ventricle Postmortem revealed an aneurysm of the lower portion of the abdominal aorta, in contact with and perforating into the inferior vena cava Microscopic studies of the abdominal aorta and of the involved segment of the inferior vena cava revealed idiopathic cystic necrosis of the media

Book Notices

The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated

Air Pollution in Donora Pa Epidemiology of the Unusual Smog Episode of October 1948 Preliminary Report. By H H Schrenk Harry Heimann George D Clayton W M Gafafer U S Public Health Service Harry Wexler U S Weather Bureau Federal Security Agency Public Health Service Bureau of State Services Division of Industrial Hygiene Public Health Bulletin No 306 Paper $1 25 Pp 173 with 90 illustrations Supt of Doc Government Printing Office Washington 25 D C 1949

This report has a foreword by Oscar R Ewing and Leonard A Scheele Surgeon General of the United States Public Health Service. There are also a few introductory remarks by J G Townsend, chief of the Division of Industrial Hygiene, and by the assistant chief, J J Bloomfield The content of the brochure is divided into an introduction, biologic studies atmospheric studies which include many subheadings, such as a collection of the atmospheric pollutants determination of the nature of these pollutants, a description of the various plant operations in the Donora area, as well as the consideration of the pollution from the domestic sources, steamboats trains and automobiles This portion of the brochure concludes with meteorologic investigations The fourth division is devoted to a discussion of the cause of the episode and the fifth division of the brochure is devoted to the summary and the recommendations

The Donora catastrophe occurred during the last week of October 1948 when 20 persons died as the result of unusual atmospheric conditions Several hundred more were affected. The Donora episode was the first of its kind to have occurred in this country but it had been preceded by a fairly similar occurrence in 1930 in the Meuse Valley of Belgium An unusually heavy smog covered the Donora Valley area beginning Oct. 27, 1948 Because of the unusual weather conditions there was no wind present to move the dense contaminated air out of the valley, it therefore remained and was changed more by the industrial and domestic pollution. The first known death due to or attributed to the smog occurred on Wednesday, Oct 27 1948 This first death was followed rapidly by many others and by Saturday night 17 known deaths had occurred Several agencies immediately entered the picture and began studies, among these was the United States Public Health Service, which had a team of workers on the job by Wednesday Nov 3 1948 After this initial contact by the United States Public Health Service, a team of 25 workers was organized under the direction of Dr H H Schrenk which began a five month study of the causes and various phases of this Donora smog episode

It is impossible to discuss in detail this 173 page report, especially since much of the material is statistical The survey included interview of a fairly large segment of the Donora population, in which the interviewers attempted to elicit details regarding the symptoms noted by the members of the area during the time of the intense smog as well as at other times The members of the team attempted to avoid leading questions, but it is likely that an unknown percentage of the answers received were the result of suggestion or at least the impact of the then recent catastrophe. There has been a breakdown in the statistics as to incidence by the sex and race, by sex and age, by occupation and age symptoms signs and the like. The report includes descriptions of those who died from exposure to the smog as well as those who recovered Likewise it includes postmortem findings roentgenograms and microscopic studies of the pulmonary tissue of persons examined post mortem These reproductions are excellent

On the base of this survey, investigators concluded that the following substances can be eliminated when considered as single causative agents, since among other reasons, they are neither known nor suspected to be respiratory tract irritants carbon monoxide, arsine stibine zinc oxide ferric oxide, lead oxide carbon silicates and carbon dioxide. The elimination of the aforementioned substances left for further consideration the following substances fluoride, chloride, oxides of nitrogen, hydrogen sulfides, cadmium oxide and sulfur dioxide together with its oxidation products The investigating group concluded that fluoride was not found in sufficient concentration to be considered a serious contaminant This opinion was also expressed as to the oxides of nitrogen, hydrogen sulfide and cadmium oxide The final opinion reached was that while no single substance was responsible for the October 1948 episode, the syndrome could have been produced by a combination, or summation of the action, of two or more of the contaminants Sulfur dioxide and its oxidation products, together with particulate matter are considered significant contaminants However, the significance of the other irritants as important adjuvants to the biologic effects cannot be finally estimated on the basis of present knowledge.

It is important to emphasize that information available on the toxicologic effects of mixed irritant gases is meager and that data on possible enhanced action due to absorption of gases on particulate matter is limited. Further, available toxicologic information pertains mainly to adults in relatively good health Hence the lack of fundamental data on the physiologic effects of a mixture of gases and particulate matter over a period of time is a severe handicap in evaluation of the effects of atmospheric pollutants on persons of all ages and in various stages of health

From this report by the United States Public Health Service on Air Pollution at Donora as well as surveys made in Los Angeles and elsewhere, it is evident that knowledge, control and elimination of atmospheric pollution require the combined teamwork of the industrial engineer, chemist, meteorologist, weather bureau and other allied groups That these groups are functioning is also obvious, but it is sad to realize that the medical profession has lagged behind in its participation of the physiologic and pathologic studies of atmospheric contamination The Donora report makes it clear that the deaths occurred among elderly cardiac and asthmatic persons This, of course, is the dramatic and fatal effect There is need to know whether there is an insidious effect on those living their lifetime under an industrially polluted sky Statistical studies of death rates in industrial cities are not sufficient. The situation requires the best in investigative medicine. The report by the United States Public Health Service on Air Pollution at Donora is not completely informative or conclusive It does comprise a basis for further study

Variations in Aortic Pressure in Dogs During Exercise Under the Influence of Selected Drugs and by Aortic Insufficiency By Arno Skouby Denne afhandling er af det lægevidenskabelige Facultet ved Københavns Universitet antaget til offentlig at forsvares for den medicinske Doktorgrad 1948 Paper Pp 115 with 29 illustrations Einar Munksgaards Forlag Nørregade 6 Copenhagen K 1948

This booklet describes the author s investigations from 1943 to 1947 on the subject of variations in blood pressure during work Trained dogs were fitted with special masks for the measurement of oxygen consumption and were allowed to work by running at various speeds on a treadmill Aortic pressures were recorded by means of an indwelling catheter fed through the right common carotid artery to the point of bifurcation of the brachiocephalic artery from the aorta The outer end of the catheter was held in place by a protective plaster of paris collar During the experiments, aortic pressure was continuously measured by means of converting the variations of capacitance of a condenser type manometer to a voltage waveform recorded photographically from an oscillograph

Variations in the aortic pressure waveform pulse rate and systolic and diastolic pressures were measured during various degrees of work in normal dogs in dogs treated with amyl nitrite glyceryl trinitrate histamine acetylcholine and epinephrine and in a dog with artificially induced aortic insufficiency Several pages of data and pictures of the aortic pressure waveforms are presented although in some cases the numbers of animals used are rather few to support the generalized conclusions drawn The bearing of this investigation on the understanding of the complex mechanics of blood pressure regulation is briefly discussed The highly restricted scope of this booklet will make it of interest to cardiovascular physiologists but to few others

Histopathology of the Teeth and Their Surrounding Structures By Rudolf Kronfeld B S, M D D D S Third edition, edited by Paul E Boyle D M D, Professor of Oral Histology and Pathology, The Thomas W Evans Museum and Dental Institute, University of Pennsylvania, Philadelphia Cloth $8 Pp 514 with 464 illustrations Leo & Febiger, 600 S Washington Sq, Philadelphia 6, 1949

The first edition of this book was published in 1933 The present revised edition retains the many fine features of the original text and some valuable new material The text is liberally illustrated by material collected from many sources Many of the illustrations are of the fine histologic material prepared by the late Dr Kronfeld All the illustrations are of excellent quality The text is divided into 21 chapters and a section entitled "Addenda" The latter briefly covers several aspects of differential dental diagnosis

The first three chapters are devoted to the dental anomalies and tooth calcification Retrogressive changes in the dentin and pulp are discussed in the next chapter The chapter on pulpitis unfortunately does not immediately follow The impression may be gained from this that the retrogressive changes and inflammatory involvements of the dental pulp are widely separated and unrelated pathologic entities The text suffers from several other unfortunate arrangements of material For instance, so-called Vincent's disease, while listed in the classification of periodontal diseases, is not described under periodontal diseases but is discussed in a later chapter along with such unrelated material as discolorations and stains of teeth The section on Vincent's disease is brief and inadequate

The chapter on dental caries, written by Ned B Williams, is particularly well done Several chapters on periapical disorders and tissue changes following root canal therapy contain much excellent material The nomenclature used in connection with the inflammatory periapical diseases is regrettable The term "apical periodontitis," which is used to designate the inflammatory periapical diseases or apical pericementitis, is an inappropriate one The term "periodontium" (from which "periodontitis" is derived) designates collectively the investing and surrounding structures of the teeth—the gingiva, the periodontal membrane and the alveolar bone "Periodontitis" obviously designates an inflammatory involvement of these structures Since the so-called periapical diseases do not involve the gingiva, they should not be designated "periodontitis" "Apical periodontitis" actually does not exist The chapters on the periodontal diseases suffer somewhat from an unsatisfactory classification and outmoded nomenclature For instance, such terms as "Vincent s disease," "pyorrhea alveoloris" and "pyorrhea pocket" are used

The material on a wide variety of subjects, such as tissue changes due to excessive functional and orthodontic stresses, embedded teeth, cysts of dental origins, tooth fractures and tumors of the oral cavity, is well presented This textbook is a valuable contribution to dental literature It should be read by all dental students and practitioners

Proceedings of the First Conference on Steroid Hormones and Mammary Cancer Sponsored by the Therapeutic Trials Committee of the Council on Pharmacy and Chemistry of the American Medical Association Chicago Ill April 4 to 7, 1949 Paper $3 50 Pp 205, with illustrations American Medical Association, 535 N Dearborn St, Chicago 10, 1949

The participants in the conference were the members of the Subcommittee on Steroids and Cancer and two consultants in the field of radiology and one from that of pathology In addition, there were 64 representatives from cooperating pharmaceutical firms and nine invited guests The four day sessions were opened with an address by Dr Ira T Nathanson, who is the subcommittee chairman After this there was a long statistical report by Dr Walton Van Winkle Jr, Secretary, Therapeutic Trials Committee

There are 28 tables in this report, the subjects of which include subjective response to estrogen therapy (the estrogens considered were diethylstilbestrol, ethinyl estradiol, premarin,® estradiol dipropionate, dienestrol and dimethyl ether of diethylstilbestrol), the soft tissue lesion response to estrogen therapy, the clinical changes based on progress reports relative to soft tissue changes and bone, the responses to therapy with testosterone propionate, the subjective and objective responses to the estrogens according to age groups, the various responses according to dosages with particular reference to testosterone and diethylstilbestrol, the data according to the type of menopause, the responses in cases in which there had been prior irradiation therapy, the responses according to the duration of therapy, the objective response to testosterone according to the duration of the disease, the duration of improvement following testosterone therapy, the duration of improvement following estrogen therapy, the length of time between admission and death of patients treated with testosterone and those treated with estrogens and side effects of hormone therapy After comments by the chairman there was general discussion, with some specific reports of various studies and experiences

It is difficult to draw any valid and final conclusions from this detailed and voluminous report, but many questions are raised which can be solved only by painstaking investigations over long periods of time, which factor is most important in considering the results of such a disease as cancer Irrespective of cure and objective improvement, the subject of relief of subjective symptoms which plague the cancer patient looms as most important

The report should be of great value for those who are interested in this type of experimental cancer therapy To facilitate its usefulness there are indexes of both authors and subject matter

Migraine Cervicale (das encephale Syndrom nach Halswirbeltrauma) Von Dr med et Dr sc biol Werner Bärtschi-Rochaix, Privat Dozent für Neurologie an der Universität Bern Cloth Price, 21 80 Swiss francs Pp 188, with 51 illustrations Hans Huber Marktgasse 9, Bern 16, distributors for U S A and Canada Grune & Stratton, Inc, 381 4th Ave New York 16, 1949

In 1943 the author's attention was called to a case of peculiar post-traumatic complaints referable to the head, which did not appear to be the result of concussion He saw 33 such cases between 1943 and 1947 The study of these cases is the basis of this monograph

The syndrome of "cervical migraine" can be produced not only by trauma to the neck and cervical spine but fundamentally by any trauma to the head associated with flexion, with or without brain damage Particularly forces striking the skull asymmetrically provide the necessary conditions Therefore it is advisable to watch for lesions to the cervical vertebrae in patients with head trauma

Symptoms of pain and paresthesias referable to the head are always present in cervical migraine In the majority of cases they are characterized by unilateral paroxysms, rarely by dull occipital headaches Sometimes they are brought on mechanically Usually there is tenderness at the occiput and disturbances in sensation—more commonly hyperalgesia than hypalgesia—in the dermatome of the first and second cervical vertebrae

All patients suffering from cervical migraine show a more or less pronounced "nuchal derangement" Most pronounced are unilateral neck pain, selective limitation of motion and crepitation Objectively, there is tenderness to pressure over two spinous processes, as well as pain and limitation of motion specially for lateral bending and rotation, more rarely for flexion and extension Distal symptoms can often be elicited by functional examination of the cervical spine

Approximately one third of the patients suffered from unilateral tinnitus In some of them it was brought forth or increased by certain movements of the head Twice a change in the audiometer curve could be shown under the influence of extreme positions of the head Subjective vertigo is the rule in cervical migraine It is usually dependent on certain positions or motions of the head and is of brief duration About half the patients complain of attacks of brief flickering scotomas and foggy vision, usually paralleling attacks of headache and vertigo Radicular symptoms represent a secondary syndrome Pain and paresthesias in the upper extremities are more common than disturbances in sensation Such complaints are often diagnosed as neuritides and treated as such for years

Roentgen observations of the 33 cases studied are given in detail with illustrations Radiologic studies are considered important for diagnosis in combination with clinical findings Deformities of one of the "uncinate processes" of the cervical vertebrae are commonly found in late cases (The anatomy of these "uncinate processes" is discussed in detail) Hyperostotic changes in this region involve most easily the vascular and nervous elements coursing through the intervertebral foramen and vertebral canal These are in first line the vertebral artery, which is particularly important for the labyrinthal artery, the posterior inferior cerebellar artery and the vertebral nerve originating from the inferior cervical ganglion Arguments are presented for a vascular and for a neural theory as the basis for the syndrome of cervical migraine

The course of the disease is analyzed by the author Most commonly the syndrome is observed in the first year after injury, usually in the second or third quarter-year If the disease begins sooner or immediately after the injury, then there is usually initial severe cervical trauma while cases of head trauma show a slower course After gradual or abrupt onset the course is usually slightly intermittent or stationary After one or more years part of the subjective symptoms usually regress Thus, the development is biphasic initial severe stage often complicated by head trauma, noncharacteristic intermediate stage and occurrence of the pure form of cervical migraine as typical late complication

The differential diagnosis includes the postconcussion syndrome lesions in the posterior fossa of the skull, functional diseases of the ear and labyrinth, idiopathic migraine and occipital and orbital neuralgia of traumatic or toxic infectious origin Therapy is discussed briefly Medications are given for relief Physical therapy, particularly heat, is often not well tolerated Roentgen therapy often produces favorable results Paravertebral infiltration with procaine hydrochloride usually gives relief Mechanical treatment by traction or head and neck fixation should be tried in each case An appendix gives a summary of the case histories

Akute Infektionskrankheiten und Hochdruck Untersuchungen und Betrachtungen zum Problem der postinfektiösen Hypertonie Von Otto Heinrich Arnold Dr med habil Medizinische Klinik der Universität Heidelberg Half cloth 9 60 marks Pp 130 Georg Thieme Diemershaldenstrasse 47 (14a) Stuttgart O Agents for U S A Grune & Stratton Inc 381 4th Ave New York 16 1949

This book offers summaries of 46 cases of acute infectious diseases (scarlet fever, diphtheria, angina tonsillaris, rheumatic fever and others) in which particular attention was given to the blood pressure and urinary findings during convalescence On this basis, and after reviewing some of the recent extensive literature on the subject Arnold concludes that infections are generally followed by oscillations of several regulatory mechanisms of the body These oscillations are sometimes rhythmic, sometimes irregular and too varied to be classified The behavior of the blood pressure is likewise varied and classifications of hypertension made for clinical convenience should not be assumed to have any ulterior significance It has become doubtful according to Arnold whether inflammatory changes in the kidney are causally related to hypertension, and clinical classifications of hypertension do not coincide with hemodynamic reaction types This last statement is, unfortunately, not based on any enumeration of possible combinations or any calculation of probabilities, and without statistical considerations of that sort it is impossible to determine the validity of such classifications as those proposed, for instance, in connection with the cold pressor test. The book lacks an index but has an excellent table of contents Reading is facilitated by space typing the summarizing sentences wherever they occur in the text. There also is an extensive bibliography

Leitfaden der Blutmorphologie Von Lydia Schudel Hamatologische Laborantin der Medizin Universitätsklinik Zurich *[In German English and French]* Sixth edition Paper Price $3 Pp 47 with 14 illustrations Georg Thieme Diemershaldenstrasse 47 Stuttgart O *Imported* by Grune & Stratton Inc 381 4th Ave New York 16 1947

This book was designed to provide a more or less standard morphologic basis for the identification of blood cells as seen in dry fixed films It is unique in that all textual material and legends are published in German, French and English The latter is fairly free from errors Various technical procedures are outlined and colored plates used to illustrate the genesis of blood cells and platelets Typical fields of blood cells seen in most of the blood dyscrasias are shown and their diagnostic characteristics listed It is to be regretted that reproduction of the colored plates in this edition is not as good as that in former ones, which probably is due to an inferior quality of paper For some unknown reason, blood pictures of the leukemic reticuloendothelioses and monocytic leukemia have not been included Bone marrow preparations have been omitted because it was felt that the interpretation of these was beyond the scope of a practical manual and excellent monographs on this subject are already available This book should be of service either to physicians or to technicians beginning the study of hematology

Microbiology By Florence C Kelly M S Ph D Associate Professor of Bacteriology The University of Oklahoma School of Medicine Oklahoma City and K. Eileen Hite Ph D M D Introduction by G M Dack Ph.D M D Professor of Bacteriology The University of Chicago Cloth $6 50 Pp 592 with 185 illustrations Appleton-Century Crofts Inc 35 W 32nd St , New York 1 1949

The authors of this book have presented a comprehensive treatise in microbiology with special orientation toward the role and relationship of micro-organisms in pathogenic processes in man The first section describes the biology of the protozoa, algae, fungi, bacteria, rickettsia and viruses It includes sections on cytology, classification, bacterial physiology, interrelationships of micro-organisms, microbial populations and their control Methods for the study of micro organisms are given, including microscopy, sterilization, laboratory equipment and culturing, isolation and identification methods The second part deals with the role of micro organisms as pathogenic agents in parasitism and disease, immunity, epidemiology and control of disease. A well selected reading list of summarizing references is given as well as an appendix of technical methods and reagents used in bacteriology, including preparation and use of stains, culture mediums and biochemical tests

In the authors' own words, "This textbook is intended for the student who will require a comprehensive knowledge in the fields of general and pathogenic microbiology" This is probably a student of general science or of allied scientific fields who seeks a speaking acquaintance with, or general introduction to, the nature of micro-organisms and their role in human disease It may well be used as a textbook for an introductory course in microbiology For the medical student, the graduate student and those involved in teaching and research in microbiology, it is lacking in detail and offers only a superficial handling of a vast field. Since an amazing wealth of information has been covered in this book of comparatively few pages, the coverage must represent, at best, only a good compilation of abstracts of more thorough treatises on the same subjects The reader is spared from all controversial issues, but in so doing the conservative viewpoint of the authors has led to many statements which lack discrimination

Ionization Chambers and Counters Experimental Techniques By Bruno B Rossi Professor of Physics Massachusetts Institute of Technology and Hans H Staub Professor of Physics Stanford University Cloth $2 25 Pp 243 with illustrations McGraw Hill Book Company Inc 330 W 42d St New York 18 Aldwych House, Aldwych London W C 2 1949

This book consists of volume 2 of the Experimental Techniques division of the National Nuclear Energy Series As with their accompanying volumes, "Electronics," by William C Elmore and Matthew L Sands, and "Miscellaneous Physical and Chemical Techniques," by Alvin C Graves and his co-workers, these volumes were written mainly as laboratory manuals intended for use by the staff of the Los Alamos Laboratory

With this in mind it is seen that the subjects covered do not pertain primarily to problems usually encountered in the nuclear detection laboratory The first four chapters deal with the theory of ionization and the basic theory of ionization chambers Various filling mixtures are considered from the standpoint of drift velocity, mean agitation energy and recombination The theory of operation of constant ionization chambers as well as pulsed ion chambers is taken up in some detail This is followed by a discussion of gas multiplication in general, along with some specific data for various filling mixtures Conditions which affect pulse height are enumerated, and curves are presented

In the last five chapters, typical detectors used at the Los Alamos Laboratory are described in both operational and engineering detail, including beta ray, gamma ray and roentgen ray detectors, alpha particle detectors, detectors for neutron recoil, detectors of (n, γ) and (n, p) reactions and fission detectors

The volume does not lend itself to widespread use but is primarily a reference manual for construction of detection apparatus

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED EVERY LETTER MUST CONTAIN THE WRITER S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST

INFECTIOUS MONONUCLEOSIS

To the Editor —My 22 year old son has had pharyngitis, mild fever and slight cervical adenitis for ten days I suspected infectious mononucleosis, but the blood picture was not characteristic until today Can you suggest any treatment?

M D , New Jersey

ANSWER —There is no satisfactory treatment for infectious mononucleosis Controlled clinical trials of penicillin, aureomycin and chloramphenicol have not shown these agents to be of any benefit in shortening the duration of the disease In chronic recurring mononucleosis, chloramphenicol, 3 Gm daily, appears to aid in terminating the acute attack but does not eradicate the infection Bedrest during the febrile period and restricted activity during the stage of fatigue appear to hasten recovery The diet should be rich in vitamin B complex The patient should be watched for possible secondary infection, and penicillin may be used should this occur

TRANSLUCENT DISCHARGE FROM BREASTS

To the Editor —A woman 21 years of age, seven months post partum, has noticed a translucent white discharge from the breasts at the time of menses for two months She did not nurse her baby, and lactation was suppressed immediately after delivery There are only a few drops of secretion from each breast, and it has not been blood tinged With the last episode there was also decided tenderness of both breasts near the axillas On examination, there are no masses in either breast, but there are some fairly large axillary nodes on the right Menses have been normal What is the most likely explanation?

M D Idaho

ANSWER —The fact that the translucent discharge from the breast occurred for the first time five months post partum in a woman who did not nurse her baby at any time would suggest that the cause of the discharge is totally unrelated to the previous pregnancy, although the possibility of bilateral galactocele cannot be overlooked Qualitative examination of the material expressed from the nipple would be instructive, as the discharge should contain considerable fat if the underlying cause is galactocele It is suggested, also, that this material be examined by a competent cytologist in an effort to determine the presence or absence of intraductal papillomas Although the enlarged lymph nodes on the right are probably the result of inflammation, one is not justified in assuming that they are unrelated to a possible malignant lesion in the breast The most reasonable lesion to incriminate would be a malignant intraductal papilloma, for this reason removal of one of these large nodes would be indicated in order that adequate microscopic examination of the tissue might be made If this proves to be inflammatory the decision on further treatment will have to depend on many factors which are not included in the inquiry The possibility of malignancy must be entertained even in the absence of a palpable tumor If the discharge should persist in spite of conservative treatment, every effort should be made to exclude malignant lesions from the diagnosis

MONOCULAR EXOPHTHALMOS

To the Editor —In a woman aged 44 there developed a monocular exophthalmos measuring 25 mm in one eye and a palsy of the inferior rectus muscle in the other, following a mild thyrotoxicosis (basal metabolic rate plus 30 per cent) and use of propylthiouracil The basal metabolic rate has been maintained at about zero for ten months with 100 mg of propylthiouracil daily Would thyroidectomy enhance the recession of ocular signs and resulting diplopia and disfigurement?

B F Glowacki, M D , Detroit

ANSWER —A thyroidectomy may or may not cause the exophthalmos to diminish Exophthalmos sometimes appears first when the basal metabolic rate is reduced to a subnormal level by treatment of any kind Its course is variable In this particular patient, it may become worse, remain stationary or gradually become less It would be proper to continue to treat the patient medically with propylthiouracil or perform a thyroidectomy after adequate preparation The decision should depend on what seems best for the patient

CONGENITAL HEMOLYTIC ANEMIA

To the Editor —A 15 year old boy has had intermittent jaundice apparently since he was born The boy is normal in every other respect He has not had other illnesses or surgical treatment These bouts of jaundice come on every two or three weeks or every two or three months, sometimes there is a slight fever Laboratory tests revealed the urine to be alkaline, specific gravity 1 016 plus-minus albumin negative reactions for sugar and bile, occasional squamous cells, 8 5 Gm hemoglobin, 2,960,000 red blood cells, 6,200 white blood cells 3 per cent basophils, 1 per cent eosinophils, 2 per cent stab forms, 51 per cent segmented forms, 43 per cent lymphocytes, 121,360 platelets per cubic millimeter, color index 0 9, coagulation time 5 minutes 45 seconds, bleeding time 1 minute 25 seconds, 125 mg cholesterol, icterus index 25 units, negative Van den Bergh direct reaction, van den Bergh indirect 9 4 mg , sulfobromophthalein retention in liver function test, 60 per cent at 5 minutes 15 per cent at 30 minutes and 15 per cent at 60 minutes Urobilinogen reaction was negative Anisocytosis and poikilocytosis were present The fragility test showed an initial 0 46 per cent, 0 26 per cent on completion Cephalin flocculation was 2 plus The Rh factor was positive, group II Prothrombin time was 51 per cent of normal (49 seconds, control 25 seconds), after administration of vitamin K the prothrombin time was normal (34 seconds, control 34 seconds) Cholecystograms were normal What else can be done to find the pathologic reason for this jaundice? I have in mind congenital stricture of the bile duct

E N Krueger, M D Appleton, Wis

ANSWER—Against the diagnosis of congenital anomaly of the bile ducts are the acholuric jaundice, anemia and negative direct van den Bergh reaction Results of liver function tests are relatively normal, excluding the possibility of parenchymal liver disease as the cause of anemia and jaundice of this degree and duration The intermittent jaundice since childhood, with fever, negative urine bile reaction, normochromic anemia and negative direct and positive indirect van den Bergh reaction strongly suggest hemolytic anemia One should know whether the spleen is palpable, and the family history should be investigated for jaundice In hemolytic anemia there is pronounced peripheral blood reticulocytosis and increased red cell formation in the bone marrow One would expect quantitative fecal urobilinogen studies to show decided elevation If the acquired form of hemolytic anemia can be ruled out by the absence of a history of exposure to lead or other toxins and there is no infection, the amenia can be considered *primary* A test for sickle cells should be done, especially if the patient is Negro A repeat red cell fragility test should be done with a normal control In congenital hemolytic anemia there is increased susceptibility of the red cells to hypotonic sodium chloride solution, whereas in Cooley's anemia (which seems to occur only in Mediterranean stock) there is decreased susceptibility to hemolysis of red cells in hypotonic sodium chloride solution The data given suggest congenital hemolytic anemia and if the additional tests bear this out, a splenectomy would probably bring about a cure

ARTIFICIAL MENOPAUSE IN A YOUNG WOMAN

To the Editor —A girl aged 19 had an oophorectomy in December 1941 About eighteen months later she had various symptoms common to an artificial menopause, especially vertigo Injections of 2 000 I U of estrogen twice a week eliminated the objective and subjective signs I have tried to substitute the oral administration of diethylstilbestrol for the injections, but the patient insists on a resumption of the injections which alone seem to give relief Will the constant use of estrogens be of benefit and of no danger to the patient?

F Fortunato, M D New York.

ANSWER —Estrogens should be taken orally whenever possible to save the patient time and money Cases which really require parenteral administration are infrequent if the physician takes the time and trouble to readjust the dosage according to individual needs Not infrequently, one must use a product other than the one first prescribed As a rule, estrogens should be taken once daily, preferably at bedtime, usually for a period of not more than ten days at a time followed always by a rest period, preferably of not less than two to four days

Estrogens should always be given interruptedly, rarely in an amount sufficiently large or for a period sufficiently long to induce bleeding or annoying congestion of the breasts In physiologic dosage the carcinogenic hazard warrants avoidance of estrogens only in selected cases Patients with endometriosis, those with myomas of notable size and those with excessive or inexplicable uterine bleeding should not use estrogens

In response to the specific query about the length of time the continued (interrupted) use of estrogens may be permitted With permanent cessation of symptoms, medication should cease There is little hazard in prolonged use of estrogens in moderate dosage, sufficient to relieve symptoms, in those cases in which estrogens are not specifically contraindicated

Medication over a period of many years should be permitted only under the supervision of a qualified physician Occasionally one encounters patients who demand or require massive dosage in such instances there are usually psychologic or other reasons for discontinuance of estrogens and recourse to other therapy

ARTIFICIAL INSEMINATION

To the Editor —One of my patients is sterile His wife is anxious to become pregnant but does not know of her husband s sterility The husband would like to have her artifically inseminated without her knowledge What are the medicolegal aspects?

M D Pennsylvania

ANSWER.—Artificial insemination would be illegal without the full knowledge and consent of the wife as well as of the husband The husband in this case knows that he is sterile Undoubtedly the diagnosis of male sterility was made by a consulting physician. What would there be to prevent the physician from testifying to the husband s sterility in court, if the latter should later wish to divorce his wife on charges of adultery? If there were no written evidence except the husband s word the wife would unwillingly find herself in an untenable position From the moral point of view, in these circumstances the physician would have acted unethically and would be open to the charge of fraud with respect to the wife

Under no conditions, therefore, should artificial insemination be resorted to without the full knowledge and written consent of both husband and wife, for the protection of the physician as well as that of the wife and husband. Aside from these considerations no reputable physician would be guilty of such a proceeding

CAUSES OF GYNECOMASTIA

To the Editor —A boy 15 years of age has gynecomastia Genitalia and development are otherwise normal What is the usual cause of this condition and is there any effective treatment? There is no gross indication of pituitary or adrenal tumor

M D California

ANSWER —Gynecomastia in a boy 15 years of age may be associated with any of the following conditions (1) hypogonadism which disturbs the estrogen androgen ratio (2) excess production of estrogen, which is usually associated with inadequate development of the secondary sex characteristics of the male, (3) administration of estrogen, and (4) starvation Gynecomastia is a complex disturbance and may be produced in a variety of ways It would be desirable to determine the estrogen production of this patient The treatment depends on the cause but once breast tissue has developed it is difficult to make it disappear with medical measures If the gynecomastia is associated with obesity, reduction in weight may cause the size of the breasts to diminish If there is a considerable amount of breast tissue present and the gynecomastia is disfiguring, it may be desirable to perform a bilateral mastectomy, taking special precautions to preserve the nipples and areolas

TOXINS FROM TREPONEMA PALLIDUM

To the Editor —Does Treponema pallidum produce a toxin? Are the changes in syphilitic organs of such kind that they would suggest contribution of a toxic factor e g early syphilitic nephrosis, early syphilitic hepatitis gumma and the degeneration of the brain cells in paresis?

Charles Engel M D Sydney Australia

ANSWER —There is no definite evidence of toxin production by Treponema pallidum However, there is some evidence both clinical and experimental, that certain of the late manifestations of syphilis notably the gumma, are allergic phenomena due to sensitization of the infected person to his own spirochetes This does not apply, however, to the nephrosis and hepatitis of early syphilis, nor in all probability, to the degeneration of the brain cells in paresis

REMOVING OIL FROM SYRINGES

To the Editor —After giving penicillin in oil I have considerable trouble in getting all traces of the oil out of the syringes How can this be done?

M J Pond M D Staten Island N Y

ANSWER —Any fat solvent (acetone chloroform ether or cleaning fluid) will remove traces of oil from the syringe and needle Acetone is recommended because it is water miscible and final cleansing with water can be done easily The fat solvents have a deleterious effect on rubber and should not come in contact with it

CHRONIC ARACHNOIDITIS

To the Editor —A car in which a man aged 56 was sitting was struck in the rear without the man apparently sustaining any direct injury In a week however he complained of pain over the left temporal area and visual disturbance and a left sixth nerve paralysis suddenly developed This had gradually begun to improve but four months later the sixth nerve on the right side became involved and in another three months there was paralysis of the right third nerve (ptosis of upper lid and proptosis) At about this time impairment of hearing on the right and a tendency to somnolence were noted Roentgenograms electroencephalograms and laboratory studies were not revealing Treatment with high potency vitamin preparations neostigmine bromide iodides rutin and inunctions of mercury compounds did not effect improvement When he was examined by another neurologist pallor of the disk positive Rhomberg and absent abdominal reflexes were noted He was then hospitalized With the exception of some elevation of the fluid protein all the studies including ventriculograms revealed essentially normal conditions The otologist ruled out a nasopharyngeal tumor but found the right nerve gone At about this time improvement in the elevation of the ptosed lid and in movement of the ocular muscle was noted However in view of the suspicion of a lesion of the brain stem 10 radiotherapeutic exposures were given (1 000 r total) before the patient was discharged At present (six months after hospitalization) the left eye is normal The right shows decided impairment of vision (fingers at 5 feet [152 cm]) with thinning of retinal vessels but no prominence of the disk Vision in this eye a year ago was 20/100 The lid is now only about 50 per cent ptosed and can be elevated Recent skull laminograms were interpreted as normal The general condition of the patient is good except for some anxiety reaction Could the original trauma be considered an etiologic factor?

M D New York

ANSWER —Trauma is an unlikely factor in this instance because of the absence of general symptoms especially headache, immediately following the accident Tumor can be ruled out by the spontaneous improvement which has occurred The lesions are too numerous to be accounted for by an aneurysm This leaves as the best explanation a diffuse inflammatory process It can be assumed that the possibility of syphilis has been investigated and ruled out The most likely diagnosis appears to be a chronic widespread arachnoiditis involving the base of the brain greater on the right side than on the left

PAINTING THE BODY FOR A PLAY

To the Editor —One of my patients used a paint mixed with lard to cover his entire body for a play The name of the paint is Venus Rich-gold Brilliant (W P Fuller & Co) I would like to know what ill effects this might cause

W F Holmes M D Walla Walla Wash

ANSWER —Most gilt paints are made of finely divided metal particles suspended in such a vehicle as amyl acetate. Yellow brass is one metal and fine division is procured by long pounding The application of any paint in such a vehicle as actually seals off the skin's openings distinctly would interfere with skin respiration and fatality might arise. The application of ordinary fats to the skin s surface does not preclude skin respiration Distance swimmers frequently resort to a coating of fat to facilitate slipping through the water and occasionally to prevent excessive heat loss Regularly many persons apply without ill effects oils to their bodies because of skin dryness In the present instance it is improbable that any content of the metal itself, such as lead as an impurity, would have entered the body The fatty acids of lard in the presence of copper would in time produce green discoloration, but this is of little consequence However, this practice is not regarded as being sensible

PANTERIC®

To the Editor —I am interested in obtaining information on panteric® tablets in the treatment of diabetes because the drug was recommended to my brother in place of insulin I have never heard of its use in diabetes

M D California

ANSWER.—Panteric® is the Parke, Davis & Company name for their brand of triple strength pancreatin A tablet of 0.324 Gm. is said to be equivalent of 0 975 Gm of pancreatin U S P Pancreatin is presumed to contain the fat-splitting enzymes secreted by the pancreas into the duodenum This product is not offered for the treatment of diabetes the Parke, Davis & Company catalog gives as indications treatment of indigestion and food allergy due to pancreatic hypofunction and celiac disease associated with pancreatic insufficiency

Insulin the internal secretion of the pancreas is the only effective substance for the treatment of diabetes and only in rare instances is the digestion of fats in the intestine abnormal in patients with diabetes Therefore panteric® tablets would not be of benefit in the treatment of patients with diabetes

VERNIX CASEOSA

To the Editor —What is the chemical composition of vernix caseosa? Do certain animals have a similar protective coat during their stay in the uterus?

M D , New York

ANSWER —The subject of vernix caseosa needs further investigation Textbooks of human embryology state that this "cheesy varnish" results from the desquamation of the epitrichium with an admixture (during later fetal life) of the fatty secretion of the sebaceous glands It has been assumed that the vernix caseosa guards the delicate fetal skin against the possible macerating effect of the amniotic fluid There is, it seems, no accurate information available regarding the exact chemical composition of the vernix No mention is made in veterinary books about the existence of a similar "protective" coat on the fetuses of domestic animals, nor have the veterinarians who were questioned seen it or heard of its presence—even on newborn pigs, who appear to be quite as hairless at first as the human fetus

KERATOSIS OF NIPPLES

To the Editor —A woman aged 39 at the age of 19 developed bilaterally warty-like growths of both nipples No discharge was noted The biopsy showed *keratosis of the nipples* Eight years ago she became pregnant, and the growths disappeared, but soon after the pregnancy ended they returned Twenty-seven months later she again became pregnant, and the lesions disappeared only to reappear after a delivery The patient was given estrogen therapy, and once more these verruca-like structures disappeared However, endometrial *hyperplasia with menorrhagia developed* on two different occasions and required curettement to stop the flow The patient was again curetted six months ago, and estrogen therapy was discontinued The symptoms and menorrhagia abated, and menstruation is now normal However, the nipples again show the same verruca-like growth There has been some sloughing of the center of these growths, the marginal lesions seem to have a grayish coat on them There are no regional or generalized lymph nodes The breasts are undeveloped, with slight elevation of ducts under the areola No masses can be felt in the breast tissue These verruca are now adherent and freely movable over the underlying tissue The woman also has a pea-sized polypoid subserous fibroid of the uterus Could this be Paget's disease? What course of therapy is suggested?

Charles M Horvath, M D , Phoenix, Ariz

ANSWER —Keratosis of the nipple should be considered a precancerous lesion as is keratosis in any other part of the body The original biopsy seems to rule out Paget's disease, however, another biopsy of both nipples seems indicated to be sure no pagetoid cells are present Should biopsy confirm the original diagnosis of keratosis, roentgen irradiation is worthy of trial A local radiologist should be consulted for factors of therapy Cauterization of the nipples would be the next step Anything more radical is contraindicated unless biopsy reveals Paget's disease or active malignant change

ULCER AND DERMATITIS OF LEGS DURING WORLD WAR II

To the Editor —Are data available on the incidence of ulcer and of dermatitis (or eczema) of the lower legs among troops during World War II? Only one reference on skin disease and its comparison with other diseases among troops was found (Pillsbury, D M , and Livingood, C S *Arch Dermat & Syph* 55 441, 1947)

C M Hasselmann, M D , Germany

ANSWER —Data on the incidence of ulcerative lesions of the leg are not available, because many patients with such lesions were not hospitalized However, reports in the Surgeon General's Office show that the incidence among American troops during World War II was high in all tropical areas, including North Burma, the Southwest Pacific area and the Philippine Islands In some divisions more than 50 per cent of personnel had some type of ulcerative lesion during periods of active combat The incidence was relatively high in the North Africa area but lower than that recorded for the tropical theaters The incidence of cases of cutaneous leishmaniasis was as much as 15 or 20 per thousand per year in the Iraq-Iran area Hot, humid weather, inadequate bathing facilities, insect bites and increased exposure to minor injuries of the skin contributed to a decided increase of ulcerative lesions Some lesions in American troops in the Southwest Pacific, Philippine Islands and the India-Burma theater were due to diphtheritic infections, at one time 15 per cent of one combat regiment in the North Burma area were hospitalized for six weeks to nine months

Data accumulated during World War II on the incidence of eczematous dermatitis of the lower legs among American troops are comparable to those for ulcerative lesions of the leg It is now well established that the use of quinacrine was a causative factor In some divisions in combat in tropical theaters the incidence of eczematous dermatitis of the leg was 70 to 80 per thousand Eczematous dermatitis of the legs was one of the important causes of disability in all tropical theaters The incapacitation due to this condition was prolonged in most instances, and a high percentage of these patients were evacuated

CORNEAL ULCERS

To the Editor —Kindly inform me regarding chronic, intermittent corneal ulcers My patient has them at approximately monthly intervals, and they have been resistant to therapy *She has received vitamins by mouth and various eye ointments Other physical ailments are not observed*

F W Lehmann, M D , Hartford, Wis

ANSWER.—Recurrent corneal ulcers may be difficult to treat successfully The lacrymal sac should be irrigated, the adequacy of the lacrymal secretion measured by the Schirmer test and lesions, such as wild cilia, tumors of the lid margins and inflammatory and degenerative irritations of the conjunctiva, removed The eyes should be protected from irritating chemicals and fumes, including cigaret smoke.

Recurrent corneal erosion may follow a minor ocular injury or occur spontaneously Healing usually is accomplished within twenty-four or thirty-six hours Further recurrences may be prevented by complete destruction of the affected area by application of tincture of iodine neutralized with cocaine

Herpes simplex corneae (dendritic keratitis) may recur frequently or be followed by keratitis metaherpetica. Local treatment with iodine is being supplanted by application of aureomycin Marginal ulcers may accompany many systemic, dermatologic and local eye inflammations, and treatment must be directed toward the cause

If the lacrymal secretion is deficient, irritative keratoconjunctivitis may develop The condition is seen most frequently in women after the climacteric and may be associated with defective salivary and sweat gland secretion and with arthritis Treatment is directed toward prevention of corneal drying with artificial tears or bland oils

STRABISMUS

To the Editor —A boy 6 years of age has had crossed eyes four years, since a severe case of whooping cough, he is otherwise normal His strabismus is internal in the left eye when he looks close by, and his eye becomes normal when he looks away For three years he has worn glasses with positive lenses There are no lesions in the fundus and no astigmatism What is the etiologic basis of this disorder, its treatment and the possibility of recovery?

G *Araoz Fraser*, M D , Colombia, South America

ANSWER.—The description of the strabismus indicates that it probably has an innervational origin and is due to the hypertonicity of the convergence center It is doubtful whether whooping cough is an etiologic factor It is assumed that the vision is normal and equal in each eye, that there is no decided anisometropia and that no anatomic muscular anomalies such as abnormal development or attachments are evident It is recommended that a careful refraction with the eyes under complete cycloplegia be done. While the cycloplegia is wearing off the child should start to wear constantly lenses giving full correction After six months surgical intervention should be considered if this treatment is unsuccessful The surgical procedure of choice is a recession of one or both ocular muscles

METASTASIS FOLLOWING MASTECTOMY

To the Editor —A woman 40 years of age had a radical right mastectomy in January 1948 Metastases were not found at that time but have been widely spread in bones since May 1949 Treatment with testosterone injections and irradiation of affected bones since the beginning of September 1949 have effected remarkable improvements Surgical castration is planned for the near future The patient is sensitive to roentgen rays After the castration will it be necessary to continue with the injection of testosterone? Should the operation be procrastinated and for how long?

M D , Pennsylvania

ANSWER —Immediate castration would be indicated in this patient The testosterone therapy should be continued after operation, the dosage being increased to 100 mg three times weekly until symptoms of virilism appear In addition to its organic antagonism to estrogenic substances, testosterone has a remarkable protein-sparing action, which should help maintain the nutrition of the patient Further bone metastasis or metastasis to other organs of the body may be expected

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TOBACCO SMOKING AS A POSSIBLE ETIOLOGIC FACTOR IN BRONCHIOGENIC CARCINOMA

A Study of Six Hundred and Eighty Four Proved Cases

ERNEST L WYNDER
and
EVARTS A GRAHAM M D
St Louis

General Increase—There is rather general agreement that the incidence of bronchiogenic carcinoma has greatly increased in the last half-century Statistical studies at the Charity Hospital of New Orleans (Ochsner and DeBakey),[1] the St Louis City Hospital (Wheeler)[2] and the Veterans Administration Hospital of Hines, Ill (Avery)[3] have revealed that at these hospitals cancer of the lung is now the most frequent visceral cancer in men

Autopsy statistics throughout the world show a great increase in the incidence of bronchiogenic carcinoma in relation to cancer in general Kenneway and Kenneway,[4] in a careful statistical study of death certificates in England and Wales from 1928 to 1945, have presented undoubted evidence of a great increase in deaths from cancer of the lung In this country statistics compiled by the American Cancer Society show a similar trend during the past two decades[5]

Tobacco as a Possible Cause of Increase—The suggestion that smoking, and in particular cigaret smoking, may be important in the production of bronchiogenic carcinoma has been made by many writers on the subject even though well controlled and large scale clinical studies are lacking Adler[6] in 1912 was one of the first to think that tobacco might play some role in this regard Tylecote,[7] Hoffman,[8] McNally,[9] Lickint,[10] Arkin and Wagner,[11] Roffo[12] and Maier[13] were just a few of the workers who thought that there was some evidence that tobacco was an important factor in the increase of cancer of the lungs Muller[14] in 1939, from a careful but limited clinical statistical study, offered good evidence that heavy smoking is an important etiologic factor In 1941 Ochsner and DeBakey[15] called attention to the similarity of the curve of increased sales of cigarets in this country to the greater prevalence of primary cancer of the lung They emphasized the possible etiologic relationship of cigaret smoking to this condition In a recent paper Schrek[16] concluded that there is strong circumstantial evidence that cigaret smoking is an etiologic factor in cancer of the respiratory tract and finds that his data are in agreement with the results of a preliminary report presented by Wynder and Graham at the National Cancer Conference in February 1949[17]

Purpose of Study—The purpose of the present study was to attempt to determine, so far as possible by clinical investigations, statistical methods and experimental studies, the importance of various exogenous factors that might play a role in the induction of bronchiogenic carcinoma In this regard we intended to learn the relative importance of previous diseases of the lungs, rural and urban distribution of patients, various occupations and hereditary background as well as smoking habits By obtaining all this information, we hoped to determine whether any of these factors, either singly or in combination, have had an effect in increasing the incidence of bronchiogenic carcinoma

In the present paper the chief emphasis will be placed on our findings in regard to smoking

METHOD OF STUDY

The results of this study are based on 684 cases of proved bronchiogenic carcinoma It should be emphasized that the results in this report have not been obtained from hospital records since we learned at the outset of our study that the routine records did not supply satisfactory answers to our questions It was therefore decided to seek the desired information by special interviews Six hundred and thirty-four patients reported on in this paper have been personally interviewed, and in 33 cases we obtained the information by mailing a questionnaire[18] In the remaining 17 cases information for the questionnaire was obtained from a person who had been intimately acquainted with the patient throughout his adult life

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From the Department of Surgery Washington University School of Medicine and Barnes Hospital

This study has been aided by a grant from the American Cancer Society Other phases of it will be presented in subsequent publications

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[17] Wynder E L. and Graham E A Tobacco and Bronchiogenic Carcinoma Preliminary report to the National Cancer Conference Memphis February 1949

[18] The questionnaires were sent to male and female patients with cancer of the lungs from Dr W L. Watson s Thoracic Surgery Service at Memorial Hospital New York

Through the cooperation of many hospitals and physicians throughout all parts of the country who permitted us to interview their patients it is felt that a fairly good cross section of the entire United States has been obtained The list of cooperating institutions and physicians is presented below[19]

In order to make this survey as uniform as possible, each interviewer used the questionnaire shown in table 1

In regard to smoking habits, we considered it particularly essential to learn how much a patient had smoked formerly, even though he might not smoke at all or smoke little at the time of the interview The reason for this is the well known existence of a time lag between the exposure to a carcinogenic substance and the appearance of cancer Many patients coming into the hospital with chronic disease of the lungs had stopped smoking months or even years previously We therefore asked the patients to estimate the average use of tobacco during the last twenty years of their smoking period The control patients were questioned in an identical manner, thus any possible error lying in this method of estimating smoking habits was balanced

In questioning patients about occupations, we attempted to learn all the occupations of a given patient the years during which he had held these jobs and to what type of dusts or fumes he had been exposed Similar details were obtained in regard to other possible exposures, such as those a patient might have had in connection with certain hobbies

Classification of Smoking—In order to facilitate a statistical analysis of the results, the arbitrary classification of smoking habits given in table 2 was established If a patient smoked for less than twenty years, his amount of smoking was adjusted to a twenty year period Thus a patient smoking 20 cigarets for ten years only was classified as smoking 10 cigarets daily (class 2) Such adjustments were rarely necessary, since only a few patients had smoked for less than twenty years

If a man smoked habitually more than one type of tobacco during the last twenty years, the various types were added together to make up his classification Thus a man who smoked 1 package of cigarets daily, as well as 2 cigars, was classified as a class IV, or an excessive, smoker

Histologic Types—To insure an undoubted diagnosis, microscopic confirmation of the presence of carcinoma was obtained in all cases Some difficulty arose in the histologic classification because of the variation of terms employed by pathologists in the different hospitals who examined the specimens For example, what some pathologists would designate as an adenocarcinoma others would classify as an undifferentiated carcinoma Likewise, the term oat cell or round cell carcinoma was at times used, a designation which is not recognized by some pathologists In some cases pathologists called a lesion, from biopsy section, merely a carcinoma, unclassified It may be said, however, that in general by far the most prevalent histologic types were the epidermoid or squamous carcinoma and its variant the undifferentiated carcinoma These are the most common types found in males In females the adenocarcinoma has so far been nearly as common as the other types It is unquestionably the epidermoid and undifferentiated carcinomas which have shown the

TABLE 1—*Etiologic Survey*

Name

Age

1 Have you ever had a lung disease? If so state time duration and site of disease

Pneumonia Asthma Tuberculosis Bronchiectasis
Influenza Lung Abscess Chest Injuries Others

2 Do you or did you ever smoke? Yes ☐ No ☐

3 At what age did you begin to smoke?

4 At what age did you stop smoking?

5 How much tobacco did you average per day during the past 20 years of your smoking?

Cigarettes Cigars Pipes

6 Do you inhale the smoke? Yes ☐ No ☐

7 Do you have a chronic cough which you attribute to your smoking especially upon first smoking in the morning? If so for how long?
Yes ☐ No ☐
Duration

8 Do you smoke before or after breakfast? Before ☐ After ☐

9 Name the brand or brands and dates if any given brand has been smoked exclusively for more than five years

Change frequently? ☐

First brand—from 19 to 19

Second brand—*from 19 to 19*

10 What kind of jobs have you held? Have you been exposed to dust or fumes while working there? (Use back of page for detailed description of possible exposure)

From	To	Position	Dust or Fumes

11 Have you ever been exposed to irritative dusts or fumes outside of your job? In particular have you ever used insecticide spray excessively? If so state time and duration
Yes ☐ No ☐ Type Duration

12 How much alcohol do you or have you averaged per day? State time and duration in years

Whiskey Beer Wine

13 Where were you born and where have you lived most of your life? State the approximate time span you have lived in a certain locality Up to what grade did you attend school?

Birthplace Home Educational Level

14 State the cause of death of your parents and of brothers and sisters if any

15 *Site of Lesion* *Microscopic Diagnosis* *Papanicolaou Class*

Etiological Class

Interviewer

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[19] CALIFORNIA Private patients of Drs L Brewer Daniels F Dolley D Dugan H Garland E Holman, J Jones W Rogers P Samson B Stephens Hospitals Birmingham General French Good Samaritan Letterman General Los Angeles County Southern Pacific General Stanford United States Marine United States Naval University of California, Wadsworth General COLORADO Private patients of Drs A Brown F Condon J Grow F Harper M Peck Hospitals Colorado General Denver General Fitzsimmons Fort Logan Veterans General Rose St Lukes DISTRICT OF COLUMBIA Private patients of Drs B Blades E Davis *Hospitals Georgetown George Washington* Walter Reed ILLINOIS Hospitals Cook County Veterans Administration Hines Ill MARYLAND *Hospitals Johns Hopkins* United States Naval MASSACHUSETTS Private patients of Drs D *Harken R Overholt* Hospitals *Boston* City Massachusetts General New England Deaconess MICHIGAN Hospitals Dearborn Veterans MISSOURI Private patients of Drs J Flance A Goldman R Smith *Hospitals Jefferson* Barracks Veterans, Jewish St Louis City St Louis County NEW JERSEY Hospitals Berthold S Pollack Newark City NEW YORK Private patients of Drs W Cahan H Maier J Pool W Watson Hospitals Bellevue Veterans *Administration* Brooklyn Cancer Institute Kings County Memorial Montefiore New York City Cancer Institute, New York Hospital, Presbyterian Roswell Park Memorial Institute OHIO Hospitals Veterans Administration PENNSYLVANIA Private patients of Dr J Johnson Hospitals Jefferson Medical College Temple University, University of Pennsylvania UTAH Private patients of Drs W Rumel Cutler Hospitals Holy Cross St Marks, Salt Lake *County* General Veterans Administration Dr W H Groves Latter Day Saints

greatest increase in recent years For this reason we were particularly interested in studying these types separately from the adenocarcinomas The present report includes 605 male and 25 female patients with epidermoid, undifferentiated and unclassified carcinomas and 39 male and 15 female patients with adenocarcinoma In order to determine possible sex variations in the etiology of cancer of the lung, results in men and women are reported separately

Control Study I—To check all possible bias on the part of the interviewers who saw only patients believed to have bronchiogenic carcinoma, it was deemed advisable to conduct a control study in which a nonmedical investigator would interview every patient admitted to the Chest Service of Barnes Hospital without knowing the diagnosis in advance Two interviewers[20] were used for this purpose When the final diagnosis was determined, all cases of cancer of the lungs (75 men) were separated from the other cases (132) Control patients under the age of 30 were excluded since there were no cases of cancer in this age group Seventeen male patients for whom no definitive diagnosis could be made were also omitted

In addition these interviewers interrogated patients with cancer of the lung at other St Louis hospitals,[21] also without previous knowledge of diagnosis Here the interviewers were given the names of several patients with diseases of the chest in a comparable age group, of whom at least 1 was suspected to have bronchiogenic carcinoma The patients with proved cancer of the lung (25 men) and the other patients (54 men) were added to the Barnes Hospital groups thus collectively making up control study I

To determine the smoking habits, as well as the other data contained in the questionnaire of our study of other hospital patients, the nonmedical investigators also questioned patients without cancer of the lungs on the general surgical and medical services at Barnes Hospital, the Jefferson Barracks Veterans Hospital and the St Louis City Hospital This group, called "general hospital population," consists of 780 patients Also a total of 552 female patients without cancer of the lungs have been interviewed as control patients on our surgical and medical services

Two objects were to be realized by this control study One was to learn of possible exposures to exogenous irritants of a large group of patients without cancer of the lung and the other to test the validity of the interviews made by those who knew the suspected diagnosis in a given case in advance

Age Distribution in Control Cases For proper statistical evaluation of a study of this kind it is obvious that the age distribution should be the same in the control cases as in the cases of cancer of the lungs Since no patients with cancer of the lungs below 30 or above 80 years of age were seen no controls beyond these ages have been included The controls comprised the unselected patients as they entered the Barnes Hospital and other St Louis hospitals For that reason their age distribution is not identical with that of the patients with cancer In order to be able to evaluate the cases without cancer on the basis of the same age distribution as that found in the cases of cancer, the following adjustments were made

The combined results include data on 780 cases without cancer Among these there is the following age distribution 30 to 39, 18 7 per cent, 40 to 49, 21 per cent, 50 to 59, 26 9 per cent, 60 to 69, 20 5 per cent, and 70 to 79, 12 8 per cent (For the age distribution in the 605 cases of cancer see table 5)

The smoking classifications of the control cases have been made proportional to the age distribution among the cases of cancer by multiplying the percentage value of each smoking classification for each age group of the controls by the proportion of cases of cancer in that age group For example, in the age group 30 to 39 of the controls there were 146 (18 7 per cent) patients, of whom 20 (13 6 per cent) were nonsmokers However, since of the patients with cancer only 2 3 per cent fell into this age group, the value of 13 6 per cent was made proportional to the age distribution in the cases of cancer (2 3 per cent)[22] In a similar manner the smoking values for the control group aged 40 to 49 were made proportional to 17 4 per cent Finally the quotients of the smoking classifications in each age group were added to make the percentage values shown in figure 3 The detailed data which compare the smoking classifications of the two groups according to age are shown in table 6 It was from those data that the proportional values were obtained

Table 2—*Classification of Smoking Habits*

Group 0	Nonsmokers (Less than 1 cigaret per day for more than 20 years) *
1	Light smokers (From 1 to 9 cigarets per day for more than 20 years) * †
2	Moderately heavy smokers (From 10 to 15 cigarets per day for more than 20 years) *
3	Heavy smokers (From 16 to 20 cigarets per day for more than 20 years) *
4	Excessive smokers (From 21 to 34 cigarets per day for more than 20 years) *
5	Chain smokers (35 cigarets or more per day for at least 20 years) *

Pipe and cigar smokers have been included by arbitrarily counting 1 cigar as 5 cigarets and 1 pipeful as 2½ cigarets

† Includes minimal smokers (from 1 to 4 cigarets a day or the equivalent in pipes or cigars for more than 20 years)

The 100 cases of cancer and the 186 cases of control study I were made proportional in the same manner

Control Study II—In addition to the control study just cited, it was thought to be valuable to have other physicians carry out similar interviews using our questionnaire It was thought that the results would serve as an effective control for the cases collected under our own supervision

At this time we are reporting preliminary results based on 83 patients interviewed at the Bellevue Hospital, Columbia University Division (New York), by Dr H G Turner[23], at the Boston City Hospital by Dr G W Ware[24], at the Crile Veterans Hospital (Cleveland, Ohio) by Dr C T Surington, and at the Veterans Administration Hospital, Hines, Ill, by Dr E J Shabart

RESULTS

The first data to be presented are based on 605 proved cases of bronchiogenic carcinoma in men, other than adenocarcinoma Five hundred and ninety-five of these cases have been diagnosed on the basis of tissue biopsy,

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[20] Betty G Proctor A B and Adele B Croninger M A

[21] City Hospital Jewish Hospital and Veterans Administration Hospital

[22] $\frac{13\,6 \times 2\,3}{100} = 0\,312$ This is the quotient which added to the others determined in the same manner makes the data shown in figure 3

[23] Of the service of Dr James B Amberson.

[24] Of the service of Dr John W Strieder

9 on the basis of examination of sputum and 1 on the basis of study of the pleural fluid[25]

Comparison of Independent Studies—Before the smoking habits of the 605 patients with cancer of the lungs are compared with those of the general hospital population, it might be well to compare the results in the two control studies and the group of 422 patients (study III) interviewed and collected by one of us (E L W) to determine any possible bias in cases in which the suspected diagnosis was known in advance and whether the data are sufficiently similar to warrant their discussion as a group

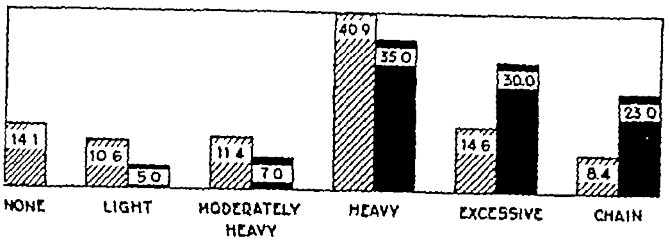

Fig 1 —Control study I Amount of smoking in percentage among 100 male patients with cancer of the lungs (solid bars) and 186 male patients with other chest diseases (lined bars) having the same age and economic distribution

Control Study I This group consists of 100 patients with cancer of the lungs and 186 with diseases of the chest other than cancer interviewed by two nonmedical investigators who had no previous knowledge of the diagnosis in a given case The data show no nonsmokers (fig 1) among the cancer group, while there are 14 1 per cent nonsmokers among the patients with other thoracic diseases Ninety-five per cent of the patients with cancer are in the classification of moderately heavy to chain smokers and 53 per cent are excessive and chain smokers, while among the patients without cancer, 75 3 and 23 per cent, respectively, fell among these smoking groups

Control Study II The data in table 3 cover 83 male patients with cancer of the lungs interviewed independently by physicians in other cities Among each small group of cases some variation is, of course, to be expected In each of the individual groups nearly half or more of the patients are excessive or chain smokers Grouping the data of the four independent investigators together, we find 2 4 per cent nonsmokers and 93 9 per cent moderately heavy to chain smokers (fig 2), while 59 per cent are excessive and chain smokers The results of the two control studies correspond closely to one another as well as to the results of study III (table 4)

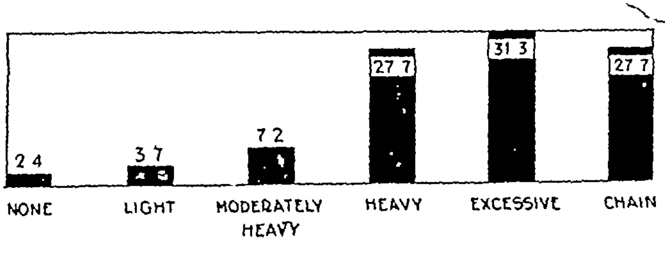

Fig 2 —Control study II Percentages for amount of smoking in 83 cases of cancer of the lungs collected independently by Dr E J Shabart (Chicago), Dr C T Surington (Cleveland), Dr H G Turner (New York) and Dr G W Ware (Boston)

The results in relation to the areas or hospitals where the cases were observed show uniformity Small differences between the groups may well be explained on the basis of the small size of each series The mountain state series includes 13 patients of Mormon faith Mormons in general were found to smoke much less than our general hospital population Among the Mormon patients with cancer of the lung, however, there was only 1 nonsmoker (72 years old) The others were long-time users of tobacco

Comparing the three studies, we note little difference For example, nonsmokers account for 0 0 per cent in control study I, 2 4 per cent in control study II and 1 4 per cent in study III The percentage of heavy to chain smokers in these three groups is 88, 86 7 and 85 2 respectively, while the percentage of excessive and chain smokers totals 53, 59 and 49 respectively

Since we thus have not been able to determine any essential difference in the amount of smoking in the three studies, we shall from here on refer to the total results of 605 cases

Age Distribution—The age distribution of cancer of the lungs in the present series shows 2 3 per cent of the patients to be under 40 years of age, while 79 3 per cent were 50 years or older (table 5) This distribution readily shows that it would be of little value to study the smoking habits of the younger age groups for the purpose of control studies, since in them, for reasons still unknown to us, cancer of the lungs is a rare phenomenon

TABLE 3—*Control Study II Amount of Smoking in 83 Cases of Proved Cancer of the Lung as Determined by Investigators Using the Same Questionnaire as that Used in the Cases of this Study*

	Bellevue Hospital (Turner)	Boston City Hospital (Ware)	Crile Veterans Hospital (Surington)	Hines Veterans Hospital (Shabart)
Cases	22	16	15	30
Amount of Smoking				
None	1	0	1	0
Light	2	0	0	1 *
Moderately heavy	2	3	1	0
Heavy	6	2	6	9
Excessive	8	5	7	6
Chain	3	6	0	14

* Minimal smoker (For definition see previous classification of smokers)

Combined Data on Amount of Smoking—The data on the amount of smoking among 605 patients with cancer of the lungs and 780 male patients with other diseases reflect the results of the individual studies reported It may also be noted that there is no essential difference in the amount of smoking between the general hospital population and patients with diseases of the chest who do not have cancer The total results show that whereas there are 14 6 per cent nonsmokers among the male general population there are 1 3 per cent nonsmokers among the male patients with cancer of the lungs, and while there are 54 7 per cent heavy to chain smokers and 19 1 per cent excessive and chain smokers among the general hospital group there are 86 4 and 51 2 per cent, respectively, among the patients with cancer All these differences seem highly significant

The results on the amount of smoking according to age groups (table 6) show that in general the patients with cancer of the lungs in their forties and early fifties have smoked more heavily than the older patients with this disease This observation does not seem to apply to the few patients in their thirties The age group 70 to 79 has the greatest percentage of light and moderately heavy smokers

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[25] Eight of these cases were diagnosed in Dr Papanicolaou's laboratory on conclusive evidence of carcinoma One sputum and one pleural fluid ation were made at the Boston City Hospital

The frequency of nonsmokers in the age groups shown for the patients without cancer is significantly different from that among patients with cancer in the same age groups However, in the 30 to 39 age group the smoking habits of the patient with cancer are difficult to evaluate since too few patients of this age have been seen

Table 4—*Study III Amount of Smoking Among Male Patients With Cancer of the Lung in Relation to Area or Hospital Where Cases Were Observed (Wynder)**

	Smoking Classification %						
Areas or Hospitals	V	IV	III	II	I	0	Average Age
Barnes (76)	18.4	31 5	43 4	5.3	0 0	1 3	54 8
Los Angeles (50)	12 0	32 0	12 0	12 0	0 0	4 0	59 5
San Francisco (50)	20 0	28 0	36 0	14 0	2 0	0 0	54 9
Mountain states (50)	14 0	26 0	36 0	16 0	4 0†	2 0	60 1
St. Louis (25)	20 0	36 0	32 0	12 0	0 0	0 0	58.2
Eastern and northern states (30)	16 3	23 6	40 0	20 0	0 0	0 0	56 1
New York City (66)	20 0	40 0	32.3	7 7	0 0	0 0	55.8
Memorial Hospital (55)	23 6	27.3	29 1	10 9	5 5†	3 6	57 6
Total (427)	18 9	30 8	36 7	11 4	1 4	1 4	56 7

* This table does not include any cases represented in control studies I and II

† Includes 1 minimal smoker

Table 5—*Age Distribution in 605 Cases of Cancer of the Lung in Men*

Age Groups	Percentage of Cases
30-39	2.3
40-49	17 4
50-59	42 6
60-69	30 9
70-79	6.8

Table 6—*Percentage Distribution of Amount of Smoking in Respect to Age Groups Among 780 Men in the General Hospital Population and 605 Men with Cancer of the Lungs**

	Age Groups									
	30-39		40-49		50-59		60-69		70-79	
No of Cases	(140)	(14)	(104)	(105)	(210)	(258)	(160)	(187)	(100)	(41)
Amount of smoking class 0	13 6	7 1	9 7	0 0	14.8	1 6	14.3	1 1	25 0	2 4
1	5 5	7 1	9 7	1 9	7 1	1 6	18 7	1 1	13 0	12.2
2	17 1	14.3	18.9	3 8	17 6	7 4	20 6	13 6	21 0	24 4
3	41 0	42 9	37 1	29 5	43.3	36 0	28 7	38 0	16 0	29.3
4	14.3	28 6	14 0	28 6	10 5	34 1	10 6	30.5	15 0	17 1
5	8.2	0 0	10.3	36.2	6 7	19 4	6.8	15 5	10 0	14 6

* The percentages for the general male hospital population are given in the left hand columns

In comparing the amount of smoking among the various age groups, one must also consider the type of tobacco used, which has undergone a marked shift particularly when the youngest and oldest age groups are considered

Statistical Analysis of Data—The statistical analysis of these data has been carried out by Dr Paul R Rider, professor of mathematics at Washington University, and H David Hartstein, M A, instructor of statistics at Washington University

On the assumption that smoking has no effect on the induction of cancer of the lungs, the probability (p) of a deviation from expectation as great or greater than that observed is as follows

Control Study I Class O, p is 0 0002, class O plus class I, p is 0 0002, classes 3 to 5 inclusive, p is 0 0226, class 4 plus class 5, p is 0 0002, class 4, p is 0 0046, and class 5, p is 0 0016

Combined Results The values for the combined results of 605 patients with cancer of the lung as compared with 780 men in the general hospital population are as follows class O, class O plus class 1, classes 3 to 5 inclusive, class 4 plus class 5, class 4 and class 5 have p values which are in all cases less than 0 0001

Their conclusion is as follows "On the basis of the statistical data for both the control study I and the combined results, when the nonsmokers and the total of the high smoking classes of patients with lung cancer are compared with patients who have other diseases, we can reject the null hypothesis that smoking has no effect on the induction of cancer of the lungs If smoking does not have anything to do with the induction of cancer of the lungs, then the observed deviation could occur only with the probability (p) as shown above"

Miscellaneous Data—Nearly all (98 7 per cent) the cigaret smokers of the cancer group, but fewer pipe (62 5 per cent) and cigar (18 per cent) smokers, stated that they inhaled consciously Seventy-eight and a half per cent of cancer patients interviewed stated that they usually began to smoke before breakfast

Type of Tobacco Among the general hospital population pipes and cigars were smoked most prominently in the older age groups For example, only 4 3 per cent of the smokers in the age group 30 to 39 used chiefly pipes or cigars, 11 0 per cent in the age group 40 to 49, 12 9 per cent in the age group 50 to 59, 30 per cent in the age group 60 to 69 and 38 per cent in the age group 70 to 79 Only those patients were tabulated as either pipe or cigar smokers who smoked a given type of tobacco predominantly over the last twenty years of their smoking period Among the age-adjusted general hospital population we find 12 4 per cent pipe smokers and 7 8 per cent cigar smokers and among the patients with cancer 4 0 per cent and 3 5 per cent respectively (fig 4)

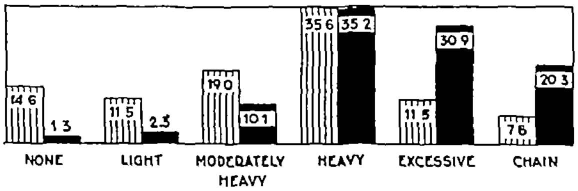

Fig 3—Percentages for amount of smoking among 605 male patients with cancer of the lungs (solid bars) and 780 men in the general hospital population without cancer (lined bars) with the same age and economic distribution

The average age of the pipe smokers with cancer of the lung was 60 5, with a range of 52 to 78, and the average age of the cigar smokers with cancer of the lung was 63 1, the range being from 53 to 76 The average number of pipes smoked by the cancer patients was 15 6 and the average number of cigars 6 8 per day for the last twenty years of their smoking history This amount of smoking is decidedly higher than that found among the general cigar and pipe smokers

Duration of Smoking The duration of smoking in years dates to the first time the patient began smoking habitually to any degree Of 605 patients with cancer in our series, 96 1 per cent had smoked for twenty years or more, 85 4 per cent for thirty years or more, 68 2 per cent for thirty-five years or more and 50 2 per cent for forty years or more One patient with epidermoid cancer began to smoke at 45 (20 cigarets a day), and clinical symptoms of cancer of the lungs developed at 50 (class I smoker) He had no other exposure to irritants Only three of the patients with bronchiogenic cancer began to smoke after the age of 25 (fig 5)

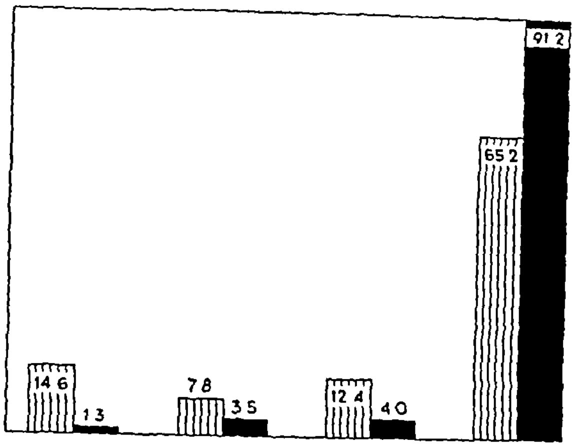

Fig 4 —Smoking habits and type of tobacco smoked (in percentages) in 605 cases of cancer of the lungs (solid bars) and 780 men in the general hospital population (lined bars) with a similar age and economic distribution

Adenocarcinoma in Men Among 39 men[26] with adenocarcinoma there were 4 nonsmokers (10 3 per cent), a percentage higher than that found for the other types of bronchiogenic carcinoma There were 7 chain smokers (18 per cent), significantly more than in the general male hospital population Ten and three-tenths per cent were excessive, 38 5 per cent heavy 15 4 per cent moderately heavy and 7 7 per cent light smokers Among the latter there were 2 minimal smokers

Data on Women[27] Among 13 women with adenocarcinoma and 2 designated as having terminal bronchiolar carcinoma there was not 1 heavy smoker Thirteen were nonsmokers and 2 light smokers Among 25 patients with epidermoid and undifferentiated carcinoma, however there were 15 smokers of many years' duration as well as 10 nonsmokers Among those who smoked there were 1 light, 4 moderately heavy, 6 heavy, 2 excessive and 2 chain smokers

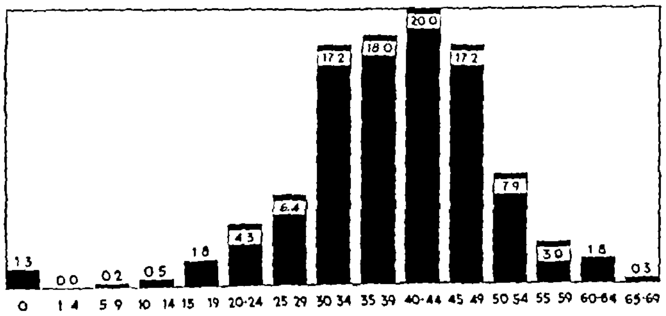

Fig 5 —Percentages for duration of smoking in years starting with the time when the patient first began to smoke habitually in 605 cases of cancer of the lungs

To determine the smoking habits among women in the general hospital population 552 patients without cancer of the lung have been interviewed at this hospital The data resulting from this study show that but few women in the cancer age have been heavy smokers for many years and that most of the heavy smokers are young women On the basis of our arbitrary smoking classification, we found 79 6 per cent of the women to be nonsmokers while 11 3 per cent were moderately heavy to chain smokers, and only 1 2 per cent of the controls in the cancer age[28] were excessive or chain smokers for at least twenty years (fig 6)

COMMENT

Universal Increase—If one feels that the greatly increased incidence of cancer of the lungs is real and that this increase is most marked in men, one may theorize that the change has been due to an external factor, or group of factors, nationally prevalent but applicable to men more and over a longer period than to women

Influence of Tobacco—Since in a small percentage of cases cancer of the lungs occurs in nonsmokers and minimal smokers and since it obviously does not develop in every person who has been a heavy smoker for a long time, it is apparent that smoking cannot be the only etiologic factor in the induction of the disease From the evidence presented however the temptation is strong to incriminate excessive smoking and in particular cigaret smoking, over a long period as at least one important factor in the striking increase of bronchiogenic carcinoma for the following reasons (1) it is rare to find a case of epidermoid or undifferentiated carcinoma in a male patient who has not been at least a moderately heavy smoker for many years, (2) the use of cigarets is much greater among patients with cancer of the lungs than among other patients of the same age and economic groups, (3) the sex distribution of cancer of the lungs roughly corresponds to the ratio of long-term smoking habits of the two sexes (see section on "Duration of Smoking"), (4) the enormous increase in the sale of cigarets in this country approximately parallels the increase of bronchiogenic carcinoma[29]

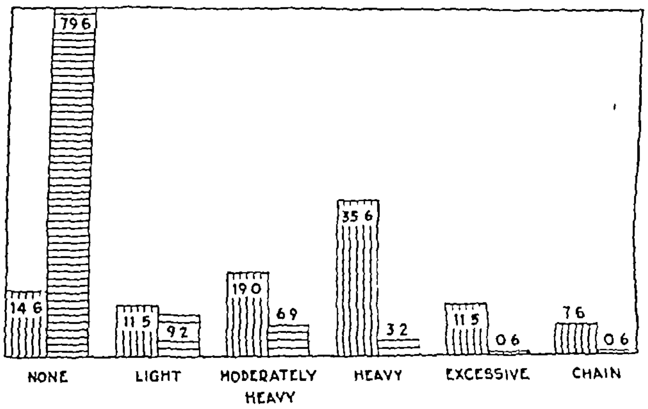

Fig 6 —Amount of smoking in percentage among 780 male patients (vertically lined bars) and 552 female patients (horizontally lined bars) of the general hospital population with the same age and economic distribution as found among cases of cancer of the lungs

Amount of Smoking—The data have clearly shown that the average patient with cancer of the lungs smokes much more heavily than the average patient of the same age and economic group with some other disease This contrast becomes even greater if our observation of Mormons is considered, who as a group smoke far less than the general hospital population, Mormons with cancer of the lung were, with one exception, considerable smokers

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[26] Includes 3 cases of Dr C T Surington and 1 case of Dr H G Turner

[27] Includes 4 cases of Dr H G Turner and 3 cases of Dr G W Ware

[28] See table 5

[29] It is taken for granted of course, that by itself such parallelism would mean little since similar curves could be drawn for many other commodities

The fact that patients with bronchiogenic cancer in their forties and fifties had smoked more heavily than those in whom the cancer developed at a later age may indicate that the greater the irritation the sooner will cancer develop in a susceptible person Such an observation obviously does not apply to the individual case but rather to the age groups taken collectively Too few patients below the age of 40 have been seen in order to evaluate this age group

In general it appears that the less a person smokes the less are the chances of cancer of the lung developing and, conversely, the more heavily a person smokes the greater are his chances of becoming affected with this disease

Type of Tobacco—The majority of patients with cancer of the lungs are cigaret smokers rather than pipe or cigar smokers the ratio being over and above that found in the general population This fact may be due to one of the following reasons

1 Cigaret smoke is more frequently inhaled than is that of either pipes or cigars Obviously the lungs of an inhaler are exposed to a greater concentration of smoke than those of a person who does not consciously inhale

2 Because of the greater physical and economic convenience, more persons are heavy smokers of cigarets than of either pipes or cigars Among the latter one finds more minimal and light smokers than among the former

3 Certain irritative substances may be present in cigarets in greater amounts than in pipes or cigars The role of paper, the use of insecticides during the growth of the tobacco and other ingredients warrant further research in this regard

Duration of Smoking—One of the chief reasons many investigators have thought that tobacco has no effect on the development of cancer of the lungs has been their belief that women today smoke as much as men and that if tobacco plays a role the sex ratio of the disease should be about equal The data presented demonstrate that it makes little difference how many women smoke today or have smoked for the past ten years, since results have shown that over 96 per cent of patients with cancer of the lungs have smoked for more than twenty years and that over 80 per cent have smoked for more than thirty years

It is, of course, difficult to tell whether the important point in this regard is the fact that these persons have smoked for many years or that they have been heavy smokers for a brief period, because we have noted that also among the general male hospital population nearly all smokers have been smoking since their youth For this reason it is difficult to evaluate the one case in our study in which the patient smoked only from his forty-fifth to his fiftieth year, at which time clinical signs of cancer developed If one may judge from control data on women it would appear that a long duration of smoking is at least one important factor in the induction of cancer of the lungs The relatively low incidence of the condition in women might be explained by the fact that few women in the cancer age have smoked for an extensive period

On the basis of a twenty year period of smoking, it may be of interest to note that while only 1 2 per cent of the women were excessive or chain smokers, by contrast 19 1 per cent of the male controls were in those smoking groups a ratio which points in the same direction as the sex ratio of lung cancer

Lag Period—If smoking is to be regarded as an important etiologic factor in the development of cancer of the lungs, apparently a time lag exists for this disease as well as for carcinoma of the bladder, known to occur years after cessation of exposure to aniline We have now seen 3 cases in which clinical signs of cancer of the lung appeared ten years or more after the patient stopped smoking The 3 patients had smoked for thirty years or more, and none gave a history of occupational or other irritative exposures Two of them had stopped smoking because of a bothersome chronic cough and 1 because of concomitant heart disease In 1 of the patients, a 67 year old warehouse clerk, clinical symptoms of cancer developed thirteen years after the cessation of smoking The phenomenon of the lag period is of course well known in cancer research

Adenocarcinoma in Men—Since the great increase in cancer of the lungs has mostly involved the epidermoid and undifferentiated carcinomas, it would appear that the exogenous factors possibly affecting these types of cancer play a lesser role, if any, in the induction of adenocarcinomas of the lung in men As yet we have not seen a sufficient number of cases of this type of cancer to warrant definitive conclusions It appears, however, that on the basis of present data one is more likely to find nonsmokers or minimal smokers with this type of cancer than with the other types At the same time, however, the percentage of chain smokers among men with adenocarcinomas of the lung is greater than among the general hospital population It seems, therefore, that tobacco smoke has also some influence on the induction of adenocarcinoma in men even though, as judged from the incidence, the influence on this type is much less marked than on the other types of bronchiogenic carcinoma

Cancer of the Lungs in Women—Many observers have commented on the fact that bronchiogenic carcinoma, while on the increase among both men and women, is increasing more rapidly among men In 100 consecutive cases collected by Lindskog[30] in 1938 to 1943 the ratio was 4 5 to 1, and in another series collected in 1947 and 1948 the ratio had reached 24 to 1[31] At Barnes Hospital the ratio in our last 150 cases has been 18 5 to 1 This shift in ratio has been noted in varying proportions throughout the country Such a radical change warrants a careful analysis

The insufficient number of cases of cancer of the lungs in women in our survey does not allow definite conclusions at this time So far, however, smoking seems to have had no apparent effect on the incidence of adenocarcinoma in women It is of great interest that we have observed 10 cases of epidermoid and undifferentiated carcinoma of the lungs of women who were nonsmokers with no history of occupational or other irritative exposure This percentage of nonsmokers in women with cancer of the lung is much higher than that found among men Proper explanations for this finding remains to be advanced At the same time it appears strongly suggestive that heavy smoking plays a significant role in the induction of epidermoid and undifferentiated carcinoma of the lungs in women since the percentage of heavy smokers is considerably higher in the cancer group than in the general hospital control group

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[30] Lindskog G F Bronchiogenic Carcinoma Ann Surg **124** 667 674 (Oct) 1946

[31] Lindskog G F and Bloomer W D Bronchiogenic Carcinoma Cancer **1** 234-237 (July) 1948

CONCLUSION AND SUMMARY

1 Excessive and prolonged use of tobacco, especially cigarets, seems to be an important factor in the induction of bronchiogenic carcinoma

2 Among 605 men with bronchiogenic carcinoma, other than adenocarcinoma, 96 5 per cent were moderately heavy to chain smokers for many years, compared with 73 7 per cent among the general male hospital population without cancer Among the cancer group 51 2 per cent were excessive or chain smokers compared to 19 1 per cent in the general hospital group without cancer

3 The occurrence of carcinoma of the lung in a male nonsmoker or minimal smoker is a rare phenomenon (2 0 per cent)

4 Tobacco seems at this time to play a similar but somewhat less evident role in the induction of epidermoid and undifferentiated carcinoma in women Among this group a greater percentage of nonsmokers will be found than among the men, with 10 of 25 being nonsmokers

5 Ninety-six and one-tenth per cent of patients with cancer of the lungs who had a history of smoking had smoked for over twenty years Few women have smoked for such a length of time, and this is believed to be one of the reasons for the greater incidence of the disease among men today

6 There may be a lag period of ten years or more between the cessation of smoking tobacco and the occurrence of clinical symptoms of cancer

7 Ninety-four and one-tenth per cent of male patients with cancer of the lungs were found to be cigaret smokers, 4 0 per cent pipe smokers and 3 5 per cent cigar smokers This prevalence of cigaret smoking is greater than among the general hospital population of the same age group The greater practice of inhalation among cigaret smokers is believed to be a factor in the increased incidence of the disease

8 The influence of tobacco on the development of adenocarcinoma seems much less than on the other types of bronchiogenic carcinoma

9 Three independent studies have resulted in data so uniform that one may deduce the same conclusions from each of them

ADDENDUM

Since the data presented in this paper were tabulated, 45 additional interviews of male patients with epidermoid or undifferentiated cancer of the lung have been obtained Eight of these patients have been interviewed by Dr J L Ehrenhaft from the University of Iowa Hospital, 9 were given our questionnaire by Lt Col J M Salyer from Fitzsimons General Hospital and 7 were reported on by Dr E J Shabart from the Veterans Administration Hospital, Hines, Ill Among these 24 cases there were no nonsmokers or light smokers, 7 heavy smokers 13 excessive smokers and 4 chain smokers Twenty-one additional patients have been interviewed by Miss Croninger on the Barnes Hospital Chest Service Among these there were 1 nonsmoker (a 72 year old blacksmith), 10 heavy smokers, 6 excessive smokers and 4 chain smokers These 45 cases, which include reports independently made at two additional centers (University of Iowa and Fitzsimons General Hospital), show the same trend noted in the larger series

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CANCER AND TOBACCO SMOKING

A Preliminary Report

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and
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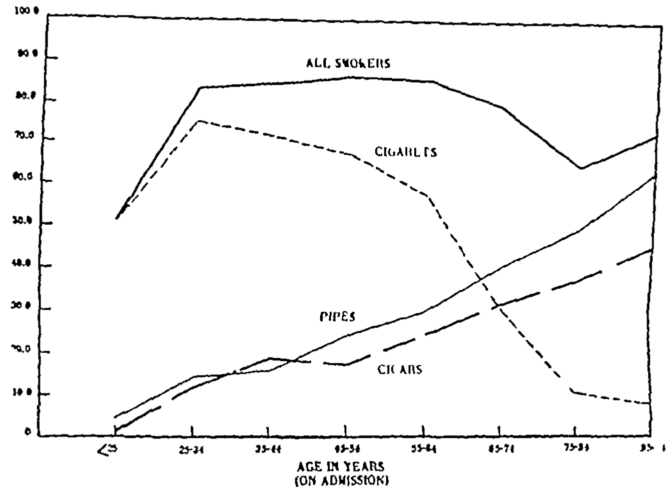
The published literature on use of tobacco and its possible association with human cancer fails to show clearcut consistent observations Reviews of the literature for the past twenty years reveals that it is often conflicting and that it consists for the most part of studies which are inconclusive because of lack of adequate samples, lack of random selection, lack of proper controls or failure to age-standardize the data Potter and Tully[1] have reported a higher proportion of smokers in patients with cancer of the "buccal cavity" and "respiratory tract" among males "over the age of 40" who were seen at Massachusetts cancer clinics

Since 1938 a history of tobacco usage has been obtained routinely from all patients admitted to the Roswell Park Memorial Institute, Buffalo These histories are part of the regular clinical history and are taken before the final diagnosis has been established This procedure is considered especially important from the standpoint of excluding bias Approximately half the patients admitted to the institute are subsequently found not to have cancer Special attention with respect to the history of smoking has not been paid to any single group of conditions, so that these records may be presumed to be free from bias which might result from preconceived ideas as to relation between smoking and a particular form of cancer



Percentage of patients who had ever smoked by type of smoking

The histories record the date smoking began, duration, type of smoking and amount per day The reliability of the quantitative aspects of smoking obtained by a history is of course highly variable It is presumed, however, that such errors are not selective with respect to presence or absence of cancer, especially since only patients suspected by their physicians of having cancer are admitted to the Institute

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With technical assistance of Elizabeth Brezee and David Robbins
From the Bureau of Cancer Control Division of Medical Services, New York State Department of Health
Dr Louis C Kress Dr Joseph G Hoffman and Miss Olive C Ralston, of the staff of the Roswell Park Memorial Institute assisted by making available the records of the institute and by making suggestions as to the planning of the study

[1] Potter E A and Tully M R The Statistical Approach to the Cancer Problem in Massachusetts Am J Pub Health **35** 485 490 1945

This report is based on a study of 1,045 male cancer patients and 605 male noncancer patients The cancer sites selected were lung, lip, pharynx, esophagus, colon rectum and a scattered number of other sites The noncancer patients were those with symptoms referable to the same sites but which proved not to be due to cancer Only the users of cigarets, pipes and cigars are considered here, since the number of patients who used snuff or chewing tobacco was negligible Smokers engaging in more than one form of smoking entered into separate analysis for each such form, so that the sum of smokers is less than the sum of smokers of each type The factor studied was whether or not the patient had ever smoked, regardless of whether he was a smoker at the time of admission

Over 80 per cent of all patients were smokers (table 1) Prevalence of smokers, regardless of type did not vary strikingly with age past the age of 25 (see the accompanying figure) Prevalence of cigaret smokers, however, decreased with age, and that of pipe smokers and cigar smokers increased with age Obviously, comparison of groups with differing age composition would show different proportions of cigaret, pipe and cigar smokers because of this factor alone Accordingly, comparisons should be made of age-specific prevalence rates or of prevalence rates standardized for age by applying the age-specific rates to a standard population The latter device was adopted, using the entire series of 1,650 patients as the standard population

TABLE 1—*Prevalence of Smokers Among Male Cancer and Noncancer Patients by Type of Smoking*

	No of Cases	Percentage of Smokers *			
		All Types	Cigarets	Pipes	Cigars
Cancer	1 045	84 8	56 0	30	22 4
Noncancer	605	77 8	46 0	24.3	20 8
P †		0 01	0 01	0 01	0 47

Age standardized
† P denotes probability here and in tables 2 and 3

The significant observations are summarized in tables 1, 2, 3, 4 and 5 There were more smokers among cancer patients than noncancer patients, because of an excess of cigaret and pipe smokers among the former (table 1) This excess was due entirely to the increased percentage of cigaret smokers among patients with cancer of the lung and the increased percentage of pipe smokers among patients with cancer of the lip (table 2) These differences, in turn, were confined to those who had smoked cigarets or pipes for twenty-five years or longer (table 3)

It should be noted that the prevalence rates of smokers in columns 2 and 4 of table 3 are age-standardized rates obtained by applying the age-specific rates for each subgroup to the age distribution of the total group of 1,650 male patients Since length of smoking is related to age, this statistical procedure was necessary to exclude the possibility that the greater percentage of "25 years or more" smokers in the cancer groups was due solely to the greater proportion of older persons in these groups The failure to find comparable differences in smokers of less than twenty-five years duration may be due to the relatively small percentage of such smokers which may be expected in an older population Further study of large numbers of younger patients may alter this observation

In tables 4 and 5 the data are presented to show the relative prevalence of lung and lip cancer among nonsmokers and among cigaret, pipe and cigar smokers in the patient population There were more than twice as many cases of lung cancer among cigaret smokers as among any other group Pipe smokers and cigar smokers had no more cancer of the lung than did nonsmokers Lip cancer was significantly increased among pipe smokers but not among cigaret smokers Cases of lip cancer were increased also among cigar smokers

TABLE 2—*Prevalence of Smokers Among Male Patients by Type of Smoking and Diagnostic Group*

Diagnosis	No of Cases	Percentage of Smokers *							
		Any Type (1)		Cigaret (2)		Pipes (3)		Cigars (4)	
		%	P	%	P	%	P	%	P
Lung cancer compared with—	236	84 7		66 1		13.5		11.2	
Other cancer (except lip)	666	82 9	0.53	48 0	0 01	25.8	0 01	20.3	0 01
Lung nontumors	124	81 1	0 39	53.1	0 02	25.5	0 09	13 4	0 04
Other noncancer	481	78.3	0.03	44 1	0 01	25 3	0 01	22 7	0 01
Lip cancer compared with—	143	84.5		45.3		48 1		26.5	
Other cancer (except lung)	666	82.9	0.58	48 0	0 48	25.8	0 01	20.3	0 11
Lip nontumors	51	74 0	0 09	43 0	0 78	30 7	0 02	34 9	0.22
Other noncancer	554	78 1	0.23	46 4	0 81	23 8	0 01	19 6	0 08

* Age standardized

In table 4 persons who smoked more than one type of tobacco are counted in each category In table 5 only those who smoked but one type of tobacco are considered The observations in table 4 with respect to lung cancer are the same as in table 5, i e , only cigaret smokers show any significant increase of lung cancer over nonsmokers For lip cancer, only pipe smokers show a significant increase over nonsmokers

No other site of cancer that was included in this study was found to be associated with any particular type of smoking However, not all sites of cancer were studied It is planned to continue analysis of the records of the Roswell Park Memorial Institute to provide data regarding all types of malignant tumors.

TABLE 3—*Prevalence* of Cigaret and Pipe Smokers Among Male Patients by Duration of Smoking and Diagnostic Group*

Diagnosis	No of Cases	Duration of Smoking					
		Under 25 Yr			25 Yr and Over		
		(1) No	(2) % *	P	(3) No	(4) % *	P
Cigaret Smokers							
Lung cancer compared with—	236	25	11.7		148	54 1	
Other cancer (except lung and lip)	666	74	13.0	0 62	233	24.9	0 01
Lung nontumors	124	19	16.8	0.23	54	36.9	0 01
Other noncancer	481	92	14.3	0 34	128	29.8	0 01
Pipe Smokers							
Lip cancer compared with—	143	8	7.8		60	35 7	
Other cancer (except lung and lip)	666	26	3 9	0 02	102	22.9	0.01
Lip nontumors	51	5	10 6	0.35	11	21.5	0 04
Other noncancer	554	35	5.8	0.24	87	17.9	0 01

* Age standardized

These data indicate that, in a hospital population, cancer of the lung occurs more than twice as frequently among those who have smoked cigarets for twenty-five years than among other smokers or nonsmokers of comparable age Pipe smokers apparently experience an almost equal increase in the incidence of lip cancer, compared with other smokers or nonsmokers It is somewhat surprising to find that the type of smoking, i e , cigarets for lung cancer, pipe for lip cancer, is the associated factor, rather than the actual use of tobacco

The data suggest, although they do not establish, a causal relation between cigaret and pipe smoking and cancer of the lung and lip, respectively The statistical association may, of course, be due to some other unidentified common factor between these types of smoking and lung and lip cancer Cancer is now generally considered a disease attributable to multiple causative factors Among these are "irritants" The generalization has been advanced that, although not all irritants are carcinogenic, all carcinogens are irritants, that is, capable of inducing chronic reparative hyperplasia Berenblum [2a] has shown also that an irritant (croton resin, basic tar fraction) which is noncarcinogenic alone may nevertheless increase the percentage of tumors produced when its action is combined with that of a carcinogen Thus, some experimental basis exists for explaining the apparent effect of cigaret and pipe smoking, although the true nature of the association with lung and lip cancer remains to be determined

TABLE 4—*Comparison of the Proportion* of Cases of Lung and Lip Cancer Among Male Nonsmokers and Smokers of 25 Years' Duration or More at Roswell Park Memorial Institute, 1938-1948*

	No of Persons	Lung Cancer			Lip Cancer		
		Cases	Rate*	P†	Cases	Rate*	P†
Nonsmokers compared with	293	23	8 6		20	6 9	
Cigaret smokers ‡	600	148	20 7	0 01	37	5.9	0 55
Pipe smokers ‡	353	33	8 6	1 00	60	13 4	0 01
Cigar smokers ‡	263	22	8 5	0 07	39	12 5	0 03

* Standardized for age against age distribution of total males

† Probability of the observed difference between smokers and non smokers occurring by chance alone

‡ Multiple smokers, e g , persons smoking more than one type of tobacco plus those smoking only one type

TABLE 5—*Comparison of the Proportion* of Cases of Lung and Lip Cancer Among Male Nonsmokers and Smokers of 25 Years' Duration or More at Roswell Park Memorial Institute, 1938-1948*

	No of Persons	Lung Cancer			Lip Cancer		
		Cases	Rate*	P†	Cases	Rate*	P†
Nonsmokers compared with	293	23	8 6		20	6 9	
All smokers ‡	761	148	17 1	0 01	73	8 9	0 29
Cigaret smokers ‡	479	115	20 9	0 01	22	5 1	0 29
Pipe smokers ‡	166	19	10 6	0 48	34	15 7	0 01
Cigar smokers ‡	116	14	12 8	0 18	17	11 6	0 13

* Standardized for age against age distribution of total males

† Probability of the observed difference between smokers and non smokers occurring by chance alone

‡ Persons smoking only one type of tobacco

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Safeguarding the Profession—Every physician should aid in safeguarding the profession against admission to it of those who are deficient in moral character or education—Section 3, Chapter III of the PRINCIPLES OF MEDICAL ETHICS of the American Medical Association

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EPINEPHRINE, PREGNENOLONE AND TESTOSTERONE IN THE TREATMENT OF RHEUMATOID ARTHRITIS

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Reports of the effectiveness of cortisone (Kendall's compound E, or 17-hydroxy-11-dehydrocorticosterone) and of pituitary adrenocorticotropic hormone (ACTH) in the treatment of rheumatoid arthritis and spondylitis [1] have given rise to the hope that substances known to stimulate endogenous production or liberation of pituitary adrenocorticotropic hormone might also be effective in these conditions Vogt [2] demonstrated in several different species of animals that the amount of active cortical material released into the suprarenal vein in one minute is many times that which can be extracted from both adrenal cortices by present methods The administration of epinephrine was found to increase the amount of cortical material which could be recovered from suprarenal venous blood by several hundred per cent [3] Her results suggested that epinephrine, administered in doses approaching the amounts that might be liberated normally within the body, stimulates the adrenal cortex directly Long [4] concluded that the action of epinephrine on the adrenal cortex is indirect and is dependent on the presence of the anterior pituitary gland Thorn [5] has emphasized the fact that epinephrine is effective in stimulating the pituitary-adrenal system in man He and his collaborators [6] showed that epinephrine increases 11-oxysteroid and 17-ketosteroid excretion and lowers the total circulating eosinophil count by 50 per cent or more in normal subjects but not in those with pituitary or adrenocortical insufficiency Almy and Laragh [7] confirmed the observation that epinephrine consistently produces eosinopenia in normal persons Thorn [8] suggested using 0 5 mg of epinephrine subcutaneously every six hours in patients with rheumatoid arthritis and referred to improvement which he had obtained in

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patients given such treatment However he and his collaborators[9] subsequently stated that after repeated administration of epinephrine the drug loses its effectiveness as an adrenal cortical stimulator Nevertheless, these investigators have reaffirmed "very slight but definite improvement" in 2 patients with rheumatoid arthritis treated by repeated injections of epinephrine[9] They also noted that in a small number of patients with rheumatoid arthritis significant eosinopenia does not develop after the administration of epinephrine and that 1 patient in whom eosinopenia did not develop after pituitary adrenocorticotropic hormone therapy proved refractory to treatment with this agent

Other agents of a hormonal nature have also been suggested as of possible value in the treatment of the rheumatoid state Among these are pregnenolone and testosterone propionate Pregnenolone is the 3-hydroxy analogue of progesterone, occurring as a penultimate stage in the oxidative preparation of the latter[9] It has been demonstrated by Hoagland[10] that the administration of pregnenolone brings about a reduction in the urinary excretion of 17-ketosteroids under conditions of stress This fact prompted Davison and Koets[11] to use the agent in the treatment of rheumatoid spondylitis because it had been observed[12] that the excretion of 17-ketosteroids is increased in this disease Pregnenolone acetate in oil was administered by intramuscular injection to patients with active rheumatoid spondylitis A decrease in urinary 17-ketosteroid excretion as well as objective and subjective improvement was reported to have occurred Ishmael and associates[13] have reported that pregnenolone acetate is an effective treatment for rheumatoid arthritis It was used alone and in combination with testosterone propionate When it was used alone it was not considered as effective in controlling the rheumatoid state except in 4 patients (of 90 treated) Other workers[14] likewise have reported improvement in relatively small numbers of patients treated with this agent Henderson Weinberg and Wright,[9] in reviewing these reports, concluded that more than 50 per cent of patients receiving pregnenolone show symptomatic improvement, that the drug is of low toxicity and that it produces "the nonspecific sense of well-being that is characteristic of treatment with estradiol or testosterone"

Ishmael and his group[13] have also reported that of 90 patients with rheumatoid arthritis who were treated with 100 to 300 mg daily of testosterone propionate intramuscularly, approximately 65 per cent showed decided improvement within twenty-four hours Testosterone, estradiol benzoate and pregnenolone in various combinations induced remissions in 81 of 90 patients who were treated and "only five did not respond adequately" These results are particularly remarkable because it has been suggested[15] that testosterone depletes the adrenal cortex of steroids and decreases 11-oxysteroid excretion This, of course, is the reverse of the effect produced by cortisone and pituitary adrenocorticotropic hormone on 11-oxysteroid urinary excretion Furthermore, Hench[16] has commented on the almost universal failure of estrogens in the treatment of rheumatoid arthritis

The present study has been concerned with the effects of epinephrine, pregnenolone and testosterone propionate on patients with rheumatoid arthritis Thorn and others[6] stated that the fall in circulating eosinophils is the most sensitive indicator of adrenal cortical activation In this study eosinophil counts were frequently performed before during and after treatment with epinephrine and pregnenolone in order to determine their possible effect on or stimulation of, adrenal cortical activity as measured by this index A detailed study of the eosinophil level was performed on 1 patient receiving testosterone propionate in oil

Table 1—*Representative Type of Observations Made on Patients with Peripheral Rheumatoid Arthritis While They Were Receiving Treatment**

Date		10/7	10/10	10/12	10/13	10/14	10/19	10/25
Knees								
Circumference at midpatellar level in cm	Rt.	38.5	39.0	39 0	39.0	38 5	37.5	37.5
	Lt.	38.0	38.5	38 0	38.5	38 5	37 0	37 0
Heat	Rt	+	+	+	+	+	+	+
	Lt	+	+	+	+	+	+	+
Redness	Rt	0	0	0	0	0	0	0
	Lt.	0	0	0	0	0	0	0
Tenderness †	Rt	4+	4+	3+	4+	4+	2+	3+
	Lt	4+	4+	3+	4+	4+	2+	3+
Flexion degrees	Rt	100		90	100	110	90	80
	Lt	120		90	120	110	90	80
Extension degrees	Rt	135		160	135	160	150	155
	Lt.	135		160	135	150	150	160
Ankles								
Circumference at level of lateral malleolus in cm	Rt	26 0	28 0	26 25	25 0		27 0	26 0
	Lt	25 0	25 5	26.5	26 0		27.0	26 0
Heat	Rt	+	+	+	+		+	+
	Lt	+	+	+	+		+	+
Redness	Rt.	0	0	0	0		0	0
	Lt	0	0	0	0		0	0
Tenderness †	Rt	2+	3+	2+	3+	2+	3+	2+
	Lt.	1+	2+	2+	2+	2+	0	0
Dorsiflexion degrees	Rt	90		75	85		75	80
	Lt	90		75	90		70	70
Plantar flexion degrees	Rt	160		160	160		170	135
	Lt	170		170	160		170	150
Wrists								
Circumference at radial styloid in cm	Rt	17 0		17 0	17 0		17 0	16.5
	Lt	16.5		16.5	17 0		16 5	16 75
Heat	*Rt.*	0		+ —	+ —		0	+
	Lt	0		+	+		+	+
Redness	Rt	0		0	0		0	0
	Lt	0		0	0		0	0
Tenderness †	Rt	1+		2+	3+		0	3+
	Lt	1+		2+	3+		1+	3+
Ventroflexion degrees	Rt	120		120	135		110	110
	Lt	120		120	120		120	120
Dorsiflexion degrees	Rt	135		135	135		135	135
	Lt	135		135	135		135	135
Subjective				Good	Bad	Fair	Bad	Fair

* Treatment of patient G with pregnenolone 300 mg daily started Oct 9 1949 and ended Oct 16 1949

† Here and on table 2 tenderness is classified 1+ patient admits tenderness 2+ grimaces during palpation 3+ withdraws from palpation and 4+ has violent emotional reaction (crying rage) with palpation

MATERIALS AND METHODS

All patients who were studied had clinical and roentgenographic evidence of peripheral rheumatoid arthritis and/or spondylitis They were selected from patients hospitalized at the Veterans Hospital, the Bronx, New

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York, from ambulatory patients treated at the Arthritis Clinic of the New York Hospital and from private practice Inasmuch as a certain number of patients with rheumatoid arthritis in the early stages of the disease may improve spontaneously, only patients showing a chronic but active course of the disease were selected for treatment Activity was judged by the presence of a combination of several of the following conditions heat, redness, soft tissue swelling, joint immobility, joint effusion, pain, tenderness, the "jelling phenomenon" of Hench, fever, leukocytosis and elevated sedimentation rate

TABLE 2—*Representative Type of Observations Made on Patients with Rheumatoid Spondylitis While They Were Receiving Treatment**

Date		9/17	9/20	9/27	9/30	10/3	10/10	10/19	10/21	10/25	10/28	10/31	11/3	11/7	11/9	11/21	11/29
Neck																	
Torticollis to left degrees		20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Tenderness,† bilateral		2+	2+	2+	1+	1+	1+	1+	1+	1+‡	1 to 2+	1+‡	1+	2+	1+	1+	2+
Extension, degrees		0	0	0	0	0	—	0	0	0	0	10	10	10	15	30	15
Lateral flexion § in inches	Rt	1½	1⅜	1	1	⅞	—	—	1	½	1	½	1½	1⅛	2½	2	1¼
	Lt	1	¾	⅝	¾	¾	—	—	¾	1	¾	½	1¼	1	1¼	½	1¼
Rotation ‖ in inches	Rt	½	⅝	⅛	⅜	½	—	0	½	¾	¾	⅞	½	⅞	½	1	¾
	Lt	¾	½	⅝	½	½	—	½	½	½	½	½	½	½	½	½	1
Chest																	
Maximum expansion at nipple line		1½	1⅞	2¼	2	2¼	1½	1¼	1½	1¾	1½	2⅜	2⅛	2⅛	1¾	1½	1½
Back																	
Muscle spasm		+	+	+	+	+	+		+	+	+	+	+	+	+	+	+
Flattening of lumbar curve		+	+	+	+	+	+		+	+	+	+	+	+	+	+	+
Tenderness † of dorsal region of spine ¶		L5 down 2+	L1 down 2+	L5 down 2+	T12 down 1+	T8 down 1+	T10 down 1+	T6 3+, S 1+	T5 to 11, 1+	T5 & 6, 1+, S 1+	T12 down 1+	S 1+	T8 down 1+	T3 to 7, 2+ S 1+	S 1+		
Ventroflexion # of spine		16¼	15	16¼	14½	14	14¼	14¼	13	10	8⅛	6	4	8	6	3½	5
Lateral flexion of spine **	Rt	2⅝	2¼	2⅛	2½	2¼	—	2	3	3¾	3½	3½	4	2¾	3	2⅛	
	Lt	2½	3½	2½	2	2¼	—	2	2½	3	3¼	3	3	2	2¾	2½	2¼
Shoulders																	
Tenderness †	Rt	1+	1+	0	—	0	—	—	0	0	2+	0	0	0	0	2+	2+
	Lt	1+	0	0	—	0	—	—	0	0	0	0	0	0	0	1+	2+
Abduction in degrees above horizontal plane	Rt	10	10	10	—	10	—	—	—	—	10	30	45	10	45	—	15
	Lt	10	15	15	—	15	—	—	—	—	45	45	45	45	40	—	30
Internal †† rotation	Rt	L2	T12	T10	—	T10	—	—	—	—	T12	T10	T8	T8	T8	T11	T12
	Lt	L2	T12	T10	—	T10	—	—	—	—	T10	T8	T7	T7	T8	T10	T8
Erythrocyte sedimentation rate (Cutler) (23 on July 22)							19			18			20	19			

* Treatment of patient D with epinephrine, 0 5 mg subcutaneously every six hours, began Sept 21, 1949 and ended Oct 10, 1949 Pregnenolone acetate therapy, 300 mg daily by the intramuscular route for twenty two days, a total dose of 6,600 mg, began Oct 19 1949 and ended Nov 9 1949 Ventroflexion of the neck, tested on each of the dates listed, was always chin to chest

† Tenderness classified as on table 1

‡ On October 25 and 31 tenderness of neck was on the left only

§ Lateral flexion of neck is the maximum change in the distance between the root of the tragus and the acromioclavicular joint

‖ Rotation of the neck is the maximum change in the distance between the cleft of the chin and the acromioclavicular joint

¶ L indicates lumbar and T, thoracic vertebrae S indicates sacral region

# Ventroflexion of spine is measured as the shortest distance in inches between the most dependent finger tip and the floor (with the knees fixed in extension)

** Lateral flexion of spine is measured as the maximum change in distance between the most dependent finger tip and the floor during movement from the erect position

†† Internal rotation of shoulder is measured as that spinous process able to be touched by the flexed second metacarpophalangeal joint when elbows, wrists and hands are normal L indicates lumbar and T thoracic vertebrae

All patients were observed for a control period of at least two weeks prior to institution of therapy Patients were studied at frequent intervals with respect to appearance, measurements, mobility and tenderness of the affected joints Tables 1 and 2 illustrate the type of observation made on these patients during this study Eosinophil counts were performed by two of us (C M G and S A B) according to the modification by Forsham and associates[17] of the direct method of Dunger Serial sedimentation rates were obtained on all patients

RESPONSE OF CIRCULATING EOSINOPHILS TO EPINEPHRINE IN RHEUMATOID ARTHRITIS

Blood for the control eosinophil counts was obtained at 8 30 a m This was followed immediately by the subcutaneous injection of 1 5 mg of epinephrine in each patient A second eosinophil count was performed four hours later In the majority of instances the subjects fasted until after the second blood sample was drawn

The epinephrine test was performed on 10 healthy young physicians who served as normal controls (part *A* of the accompanying illustration) Four hours after the injection of epinephrine all of them responded with a fall in circulating eosinophils of 40 per cent or more This was selected as a significant value

The response to initial injections of epinephrine in 24 fasting patients with rheumatoid arthritis is also shown in part *B* of the accompanying illustration Seven had an insignificant response (less than 40 per cent fall) on the initial test Results after subsequent injections of epinephrine often differed from the initial response without regard to whether or not the patient was fasting The results of a total of 70 tests on the 24 patients are plotted in part *B* Sixteen of these patients were not treated with epinephrine The remaining 8 had not received recent injections of epinephrine prior to these tests There was an inadequate response in 28 of the 70 tests (40 per cent) The nature of the responses in 16 patients who had two or more tests performed is shown in table 3 Three of these never had significant eosinopenia following epinephrine, while 6 displayed an inconstant response Seven patients consistently manifested a significant fall in circulating eosinophils after receiving epinephrine One patient in whom eosinopenia never developed following 0 5 mg of epinephrine given subcutaneously had no change in his circulating eosinophil count at the conclusion of a continuous twenty-four hour intravenous infusion of 2 400 cc of isotonic sodium chloride solution containing 5 0 mg of epinephrine

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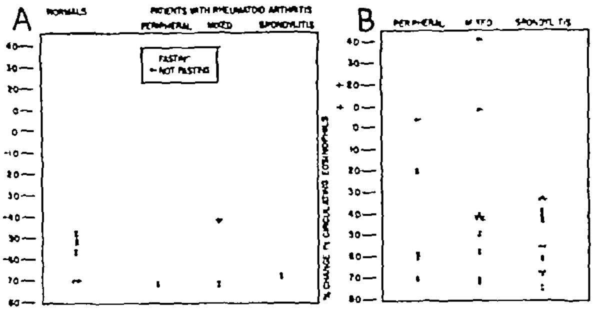

Response of circulating eosinophils to epinephrine (*A*) four hours after the initial administration of 0 5 mg of the drug subcutaneously in 10 normal controls and in 24 patients with rheumatoid arthritis (*B*) in a total of seventy tests made four hours after the administration of 0 5 mg of the drug subcutaneously to 24 patients with rheumatoid arthritis

In 4 patients with rheumatoid arthritis there was no significant change in the circulating eosinophil count four hours after the subcutaneous injection of 0 5 mg of arterenol (nor-epinephrine) In three other patients the intramuscular injection of 150 mg of pregnenolone acetate in oil caused no noteworthy change in the eosinophil count One patient failed to show eosinopenia up to twenty-four hours after the intramuscular injection of testosterone propionate in oil

EPINEPHRINE THERAPY OF RHEUMATOID ARTHRITIS

Twelve patients with rheumatoid arthritis were treated with epinephrine, 0 5 mg in saline solution given subcutaneously every six hours for seven to sixty-five days Table 4 summarizes the observations on these patients Only 1 patient (M) showed subjective and objective improvement while receiving this therapy This patient had Reiter's syndrome associated with rheumatoid spondylitis, and the improvement occurred only in the peripheral joints This improvement was maintained after the treatment was discontinued Spontaneous remission is common in Reiter's syndrome This patient's failure to relapse after treatment was discontinued suggests that the improvement was not related to epinephrine therapy It should be recalled that patients with rheumatoid arthritis treated with either cortisone or pituitary adrenocorticotropic hormone almost always relapse promptly when therapy is discontinued Two patients were subjectively worse but objectively unchanged while receiving epinephrine therapy, but 3 patients were objectively as well as subjectively worse at the conclusion of treatment Acute joint flare-ups occurred in 3 patients while they were being treated The condition in one of these 3 (O) was unchanged at the end of therapy, another (K) experienced variable slight subjective improvement during epinephrine therapy However this improvement was not attended by any measurable change in physical observations or sedimentation rate, and he continued to have frequent acute flare-ups during the sixty-five days of treatment

Because the therapeutic response to pituitary adrenocorticotropic hormone appears to be related to the eosinopenia induced by testing with the drug,[6] it was of interest to determine whether there was any relationship between the therapeutic response to epinephrine and the eosinopenia obtained by this agent Half of the hospital patients treated showed an inconsistent eosinophil response (M, N O and Q, tables 3 and 4) to epinephrine testing prior to the institution of therapy, 3 had a consistently significant eosinopenia (C, D and F, tables 3 and 4), and 1 had a consistently insignificant response (F, tables 3 and 4) The therapeutic results in all patients were uniformly disappointing One of the patients (F), who showed a consistent eosinopenia with as much as a 70 per cent fall in eosinophils during the epinephrine test experienced while receiving the treatment an acute exacerbation of symptoms in his shoulders, elbows, wrists and hands—joints which had been previously uninvolved

The fasting eosinophil counts in patients receiving epinephrine showed no consistent difference from those obtained before epinephrine therapy was instituted Such counts were done five to six hours after therapeutic injections of epinephrine In 3 of the 8 hospitalized patients the morning counts were slightly lower during therapy than prior to therapy The patient (O, table 4) in whom this was most pronounced showed an average count during therapy approximately 30 per cent lower than his average count before epinephrine was given During treatment 5 patients showed a tendency to become refractory to epinephrine in their eosinophil responses four hours after receiving 0 5 mg of this drug

Most patients complained of tremulousness, palpitations and headache after the injections of epinephrine

Table 3—*Nature of the Response of the Circulating Eosinophils to Epinephrine in 16 Patients with Rheumatoid Arthritis Who Had Two or More Tests*

Consistently Significant* Responses		Consistently Insignificant* Responses		Inconsistent Responses	
Patient	No of Tests	Patient	No of Tests	Patient	No of Tests
A	5	H	3	I	4
B	3	J	4	M	3
C	3	K	3	N	7
D	5			O	6
E	4			P	7
F	3			Q	2
G	2				

* A fall of 40 per cent or more was considered significant

PREGNENOLONE THERAPY IN RHEUMATOID ARTHRITIS

Nineteen patients were given intramuscular injections of pregnenolone or pregnenolone acetate[18] in courses of seven to fifty-one days Table 5 summarizes the treatment and results in these patients The dose varied from 100 mg to 300 mg Injections were given daily in the majority of cases, but a few patients received injections only two or three times a week Total dosage ranged from 1,600 to 10 600 mg With one exception (D, table 5) there was no consistent subjective or objective improvement in any of the patients treated An abstract of the clinical record of patient D, who appeared to respond, is given in table 2 This

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[18] Dr Arthur Wright of the Schering Corporation supplied the pregnenolone and testosterone propionate (oreton®) used in this study

TABLE 4—*Treatment of Rheumatoid Arthritis with Epinephrine*

Case	Age	Sex	Type	Duration of Disease	Daily Dose Mg	Period of Treatment	Total Dose, Mg	Results
C	52	M	Mixed*	31 yr	2.0	14 days	28	Subjectively worse objectively unchanged
D	29	M	Rheumatoid spondylitis	4 yr	2.0	20 days	40	Subjectively and objectively unchanged
F	47	M	Mixed	10 mo	2.0	9 days	18	Subjectively and objectively worse, refused further therapy
K	49	M	Mixed	25 yr	2.0	75 days	150	Subjectively variable slightly improved objectively unchanged
M	39	M	Mixed	5 yr	2.0	22 days	44	Subjectively and objectively improved
N	36	M	Mixed	6 yr	2.0	7 days	14	Subjectively worse objectively unchanged refused further therapy
O	32	M	Peripheral arthritis	2 yr	2.0	35 days	70	Acute flare up during therapy subjectively and objectively unchanged at close of treatment
Q	50	M	Peripheral arthritis	10 mo	2.0	29 days	58	Subjectively and objectively worse, bilateral knee effusion developed during treatment
Si	52	M •	Peripheral arthritis	12 yr	2.0	14 days	28	Patient requested that treatment be discontinued
Sch	51	F	Peripheral arthritis	6 yr	2.0	28 days	56	Subjectively and objectively worse
Br	72	F	Peripheral arthritis	18 yr	2.0	14 days	28	Unchanged
Bo	45	F	Peripheral arthritis	10 yr	2.0	14 days	28	Unchanged

* Coexistent peripheral arthritis and spondylitis

TABLE 5—*Treatment of Rheumatoid Arthritis with Pregnenolone*

Case	Age	Sex	Type	Duration of Disease, Yr	Daily Dose, Mg	Duration of Therapy, Days	Total Dose Mg	Sedimentation Rate*		Results
								Before	After	
B	45	M	Rheumatoid spondylitis	6	300	15½	4,650	15	20	Subjectively worse, objectively same refused further therapy
D	29	M	Rheumatoid spondylitis	4	300	27	6,600	19	10	Improvement in motion of spine
G	42	M	Peripheral arthritis	3	300	8	2,400	28	26	No change
H	29	M	Rheumatoid spondylitis	8	100 300	16 7	3,700	21	18	No change No change
J	39	M	Rheumatoid spondylitis	7	100 300	22 28	10,600	24	25	No change No change
K	49	M	Mixed †	23	100	16	1,600	24	25	No change
L	34	M	Rheumatoid spondylitis	5	300	14	4,200	14	19	Subjectively worse, objectively unchanged refused further therapy
N	36	M	Mixed †	6	300	7	2,100	22	20	No change
R	35	M	Mixed †	12	300	14 6	6,000	6	15	Joint flare up on medication
P	26	M	Rheumatoid spondylitis	5	300	13	3,900	8	19	Subjectively worse, objectively unchanged refused further therapy
Ga	59	F	Peripheral arthritis		100	14	1,400	17	15	No change
Lu	65	M	Peripheral arthritis		100 P‡ 50 plus T§ 50	14 10	P 1,900 plus T 500	85 65	65 65	No change No change
Gy	50	F	Peripheral arthritis		100	10	1,000	53	100	Worse
Ru	36	M	Rheumatoid spondylitis		100 P‡ 50 plus T§ 50 three times a wk 200	29 12 16	P 6,400 plus T 300	62	54	Marked subjective improvement, then relapse no objective change
Sch	51	F	Peripheral arthritis		100	28	2,800	72	50	No change
Py	17	F	Peripheral arthritis		100	5	500	52	51	No change
Co	20	M	Peripheral arthritis	2	200	14	2,800			No change
Br	72	F	Peripheral arthritis	18	200 twice a wk	6	1,900	[illegible]	54	No change
Pl	41	M	Rheumatoid spondylitis	5	200	11	2,200	24	21	No change

* By Cutler method in the first 10 patients in the table and by Westergren method in the remainder

† Coexistent peripheral arthritis and spondylitis ‡ P indicates pregnenolone § T indicates testosterone

patient had a fluctuating course, but some joints showed gradual improvement in mobility beginning four days after the institution of treatment It should be noted, however, that tenderness of the dorsal portion of the spine, muscle spasm and moderately severe, intermittent night pain and morning stiffness were still present at the conclusion of therapy His sedimentation rate remained elevated There was a three day flare-up of symptoms in the right shoulder from the ninth to the twelfth day of treatment and a subsequent exacerbation of symptoms in his back and shoulders during the third week of therapy His general condition was somewhat improved, and this improvement bore at least a time relationship to treatment with pregnenolone acetate After cessation of therapy he continued to show further improvement in forward flexion of the spine, although there subsequently developed a recurrence of pain in the hips A second patient (Ru table 5) with rheumatoid spondylitis reported fairly extensive subjective improvement at the end of the first week of therapy This was not attended by objective evidence of benefit and after one month of continuous therapy the patient gradually relapsed to the symptomatic state that existed prior to institution of pregnenolone treatment

Most patients complained of moderate to severe pain at the site of injection, but there were no untoward reactions

TESTOSTERONE PROPIONATE IN THE TREATMENT OF RHEUMATOID ARTHRITIS

Thirteen patients were treated with testosterone propionate in oil Of these, 11 had rheumatoid arthritis and 2 had chronic tophaceous gouty arthritis Table 6 summarizes the observations in these cases Two patients with rheumatoid arthritis were treated with a combination of pregnenolone acetate and testosterone The dosage of testosterone was 100 to 200 mg injected intramuscularly either daily or two or three times a week The total dosage ranged from 500 to 1,800 mg In no instance was there a true remission of the disease In 3 patients moderate improvement was noted, but this improvement was entirely subjective In the two patients with chronic tophaceous gouty arthritis there was definite worsening of the symptoms after early amelioration Several patients experienced malaise as well as an increase in their rheumatoid symptoms We were unimpressed with any tonic effect In 2 instances there was definite evidence of water retention manifested by dependent edema and weight gain Other untoward reactions noted were a deepening of the voice and increased hair growth on the upper lip in 2 women None of the male patients admitted having any change in libido

COMMENT

The natural course of rheumatoid arthritis is such that evaluation of treatment is exceedingly difficult Improvement, when it occurs spontaneously is usually a gradual phenomenon The prompt and dramatic remission almost universally effected by cortisone and pituitary adrenocorticotropic hormone provides a standard by which various forms of hormonal therapy may be measured The improvement brought about by gold salts and other therapeutic agents takes a much longer time, but nothing has been reported to suggest that the pharmacologic behavior of the agents used in this study is in any way similar to that of gold salts In some of the published reports the inference has been that the action of these agents (epinephrine, pregnenolone and testosterone) is similar to that of the endocrine substances, cortisone and pituitary adrenocorticotropic hormone, proved to be effective in this disease Because of the course of rheumatoid arthritis and the new standard of measurement which has recently been provided, one is justified in being somewhat skeptical of hormonal agents which must be administered for long periods of time in order to bring about improvement Furthermore, reports of "slight," "grade 1" or even "moderate" improvement in rheumatoid arthritis are of doubtful significance in view of the nature of the disease Frequently repeated and painstakingly performed examinations must be made in order to ascertain the value of therapeutic agents in this disease Objective improvement must be demonstrated to parallel subjective improvement in order to credit an agent as being effective

In the present study the number of patients treated with these three agents is small and the periods of observation have been short It may be that larger amounts of the drugs given over a longer period of time, or with a different schedule of doses, would have a more beneficial effect There is a reasonably plausible rationale for the use of epinephrine in rheumatoid arthritis The rationale for the use of testosterone pregnenolone and estrogenic hormones either alone or in various combinations is less clear, and in this investigation pregnenolone and testosterone have been found to be as consistently disappointing in the treatment of rheumatoid arthritis as was epinephrine The negative results and some of the unpleasant side effects have led us to believe that these agents offer no real promise in the treatment of rheumatoid arthritis

Table 6—*Treatment of Rheumatoid Arthritis and Gouty Arthritis with Testosterone Propionate*

Case	Age	Sex	Type	Duration of Disease	Daily Dose Mg	Duration of Therapy Days	Total Dose Mg	Sedimentation Rate* Before	Sedimentation Rate* After	Results
M	45	F	Peripheral arthritis	10 yr	100 200	6 6	1,800	92	84	No improvement
Ca	39	F	Peripheral arthritis	7 yr	100	5	500	15	24	No improvement
Cy	60	F	Peripheral arthritis	9 yr	100	5	500	100	80	Worse
Lu	65	M	Peripheral arthritis	9 yr	100	8	800	85	72	Minor improvement
Sl	58	M	Peripheral arthritis	8 yr	100	14	1 400	42	26	Minor improvement (subjective)
Py	17	F	Peripheral arthritis	6 mo	100	8	800	52	38	No improvement
In	47	F	Peripheral arthritis	1 yr	100	6	600	1	18	Minor improvement (subjective)
By	63	F	Peripheral arthritis	20 yr	100	6	600	95	55	Worse
Sch	46	F	Peripheral arthritis	6 yr	100	5	500	50	75	Worse
He	36	F	Peripheral arthritis	6 yr	100 twice a week	10	1 000	46	33	Worse
Br	72	F	Peripheral arthritis	18 yr	100 three times a week	8	800	82	87	Worse
								Uric Acid (Mg /100 Cc)		
Di	43	M	Gouty arthritis	11 yr	100	10	1 000	7 0	7 4	Improvement then worse
Fp	54	M	Gouty arthritis	11 yr	100	10	1 000	7 2	8 6	Improvement first day then worse

* Westergren method

CONCLUSIONS

1 Some patients with rheumatoid arthritis fail to manifest significant eosinopenia after the subcutaneous administration of 0 5 mg of epinephrine Furthermore after repeated testing the response may be inconsistent and unpredictable on the basis of previous performances

2 The subcutaneous administration for seven to sixty-five days of 0 5 mg of epinephrine four times a day to 12 patients with rheumatoid arthritis failed to influence the course of the disease

3 There was no relationship between the eosinopenia produced by epinephrine and the therapeutic response to treatment with epinephrine

4 Intramuscular injections of pregnenolone or pregnenolone acetate daily or two or three times a week resulted in no improvement in 17 cases of rheumatoid arthritis One patient with rheumatoid spondylitis improved objectively and subjectively In 1 patient with rheumatoid spondylitis there was minor subjective improvement at the end of one week's treatment, but this was followed by gradual relapse in the face of continued therapy

5 Intramuscular injections of testosterone propionate, 100 to 200 mg daily or two or three times a week, in 11 patients with rheumatoid arthritis and in 2 patients with chronic tophaceous gouty arthritis failed to result in any consistent improvement

33 East Sixty-First Street (21)

SURGICAL TREATMENT OF BRONCHIECTASIS IN CHILDREN

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Since adequate reports of pulmonary resection in children are lacking, it is felt timely to present the results of surgical treatment in 25 cases of bronchiectasis in children One of the common causes of cough is bronchiectasis Laennec, many years ago, stated that for every 4 cases of bronchiectasis in the adult, 3 had their origin in childhood In view of the morbidity and mortality accompanying this lesion, it is of the utmost importance that early recognition and adequate therapy be carried out The only successful treatment to date is surgical extirpation of the suppurative lung disease

It is estimated that bronchiectasis represents about 5 per cent of all diseases in childhood The classic symptoms are cough, sputum and hemoptysis The patients are subject to numerous infections of the upper respiratory tract and recurrent attacks of pneumonia The principal complications are direct extension of the infection, pneumonia, empyema, pulmonary abscess formation, metastatic abscess (especially brain abscess) formation and hemorrhage The disease is chronic and progressive, and the course is downhill unless the condition is adequately treated

There are many theories concerning the pathogenesis of bronchiectasis Mallory[1] stated that the usual case is caused by primary bronchitis and secondary atelectasis Therefore, the best line of attack appears to be prevention or prompt alleviation of atelectasis The morbidity and mortality rates convince one that treatment is definitely needed Perry and King,[2] on the basis of follow-up examination of 400 patients, concluded that in twelve years the mortality of the patients who had not undergone surgical intervention was 26 per cent, 41 per cent of the patients dying within five years of onset In the fatal cases 70 per cent of the patients died directly of the disease There is evidence that patients in whom bronchiectasis develops before the age of 10 do not live beyond the age of 40[3]

In consequence, it is generally agreed that the definitive treatment of bronchiectasis is surgical Although medical management may appear to alleviate the symptoms, it is only palliative, and the mortality and morbidity rates remain elevated The treatment of choice is early pulmonary resection, provided not too great a portion of lung tissue must be sacrificed Riggins[4] states that the physician who routinely advises young adults with operable bronchiectasis against surgical procedures is assuming a great responsibility and, in all probability, renders his patient a great disservice

RESULTS OF SURGICAL INTERVENTION

There have been no detailed reports concerning the surgical treatment of bronchiectasis in children This report is based on the personal surgical treatment of 25 children with bronchiectasis There were twenty-eight separate operations for pulmonary resection

Bronchoscopic examinations of all children were done before surgical intervention for the detection of any possible foreign bodies, and an evaluation of the tracheobronchial tree with regard to bronchitis, erosion or obstruction was made Complete bronchographic examinations with iodized oil were made of all children to establish a definite diagnosis of bronchiectasis and to determine the exact location and extent of the suppurative process, which is mandatory in determining the amount of the lung tissue to be resected If all involved areas cannot be resected, because of the extensive nature of the process, at least something definite is available on which a prognosis may be based

All operations were performed with the protection of sulfonamide drugs, penicillin and, in several of the recent cases, streptomycin A vigorous program of preoperative preparation was used, consisting of oral administration of sulfonamide drugs, intramuscular and aerosol administration of penicillin, postural drainage when the sputum was profuse and frequent bronchoscopic aspirations At operation, penicillin and streptomycin were instilled into the pleural cavity before the chest was closed Penicillin and streptomycin therapy was continued postoperatively for a period of four or five days The surgical technic consisted of individual ligation of all hilar vessels and closure of the bronchus with individual silk sutures, the bronchus was then covered with pleura Bronchoscopic examinations of all patients were made at the conclusion of the operations Frequent postoperative bronchoscopic examinations and tracheal aspirations were used to prevent bronchial obstruction and failure of expansion Routine closed drainage was used in all cases on closure of the chest Prompt thoracentesis was done in the presence of effusion

The ages of the children varied from 2 to 12, with an average of 7 years All gave a definite history of chronic cough and pneumonia, several had previously had attacks of hemoptysis In most instances the onset of trouble started with measles, pertussis or pneumonia, in 2 cases, however, the onset was related to the aspiration of a foreign body, after attempts to remove it bronchoscopically had failed One child had splenomegaly of undetermined origin (Banti's syndrome) and had previously undergone splenectomy There was 1 patient with the triad of Kartagener—situs inversus, pansinusitis and bronchiectasis All were demonstrated to have bronchiectasis by bronchographic examination with iodized oil Six of the patients had bilateral involvement In addition, 1 patient with

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[1] Mallory, T E Pathogenesis of Bronchiectasis New England J Med **237** 795, 1947

[2] Perry, K M A, and King, D S Bronchiectasis Study of Prognosis Based on Follow Up of Four Hundred Patients, Am Rev Tuberc **41** 531, 1940

[3] Strieder, J W Surgical Aspects of Bronchiectasis New England J Med **238** 109 1948

[4] Riggins H N Cited by Strieder, J W[3]

extensive bronchiectasis throughout one lung had chronic empyema with a bronchopleurocutaneous fistula There were 21 patients subjected to unilateral lobectomy or segmental resection, 2 had pneumonectomy, and 2 had bilateral pulmonary resection (table 1)

It is important to note that the process was almost exclusively localized in the lower lobes, the middle lobe of the right lung or the lingular segment of the upper lobe of the left lung In complete preoperative bronchographic examination, bronchiectasis was demonstrated in an upper lobe only three times in 1 case the lesion was minimal and was not resected, the other 2 patients were children in whom the entire left lung was extensively involved and pneumonectomy had to be carried out

There had been no mortality to the time of writing The complications consisted of empyema in 1 patient (treated successfully with rib resection and drainage), serious infection of the wall of the chest which finally healed after a rather prolonged period in 1 patient, minor wound infection in 1 patient, and laryngeal edema, which developed postoperatively in a 7 year old girl on whom tracheotomy was performed in order to relieve the obstruction (table 2)

In 16 cases the results were excellent These children, at the time of writing, were completely free of all symptoms (table 3) It is significant that in these children all the diseased lung tissue could be resected All had unilateral involvement preoperatively, however, pneumonectomy was necessary in 2 cases

In 7 cases the results are classified as good These children, while free of symptoms, are still subject to rather frequent attacks of infection of the upper respiratory tract which are successfully controlled by a few days of bed rest and antibiotic therapy Among these 7 with good results are 4 cases in which there originally was bilateral involvement

The result in one patient in particular may be mentioned A 7 year old girl was subjected to three separate operations for bilateral pulmonary resection over a period of two years The preoperative diagnosis was bronchiectasis of the lower lobes of both lungs and minimal involvement of the lingular segment of the upper lobe of the left lung At the first operation the lower lobe of the left lung was removed, and this was followed by removal of the lower lobe of the right lung about one year later The child was greatly improved, but some symptoms persisted, and, finally, at the third operation, the lingular segment was removed This child has now been followed for five years and the results are considered good The other 3 cases of bilateral involvement in this group were not considered severe enough to warrant bilateral resection The removal of the more extensive areas has produced good results but it is realized that these patients need careful observation and that they may eventually need additional surgical treatment

Two patients with bilateral involvement were definitely improved by surgical intervention One underwent bilateral lobectomy These children, unfortunately, still have cough and sputum production Originally, these 2 children had rather extensive bilateral disease How their health will be affected over a period of time remains to be seen, however, surgical procedures have offered palliation and have definitely improved their general condition

Examination of the resected lung tissue revealed definite bronchiectasis in all the specimens In addition to bronchiectasis, there were atelectasis, pneumonitis and small pulmonary abscesses These findings are important, as they definitely confirmed the preoperative diagnoses made by bronchographic examination

In reviewing these results one is greatly impressed with the necessity of early recognition and prompt treatment in order to obtain the best results

COMMENT

This report is based on the results in 25 consecutive cases of bronchiectasis in children treated by pulmonary resection The follow-up studies range from six months to five years While the follow-up period is short, an impression at least, can be formed

Morbidity and mortality figures convince one that definitive treatment is needed for children with bronchiectasis The diagnosis of bronchiectasis is simple and accurate The only type of therapy which is definite and successful is surgical extirpation of the suppurative process Children tolerate pulmonary resection exceedingly well With present technics and antibiotic therapy, the dangers of surgical procedures are minimal The results of surgical intervention, in the relief of symptoms, are inversely proportionate to the extent of the involvement, and, obviously, the less lung tissue involved, the less lung tissue which need be sacrificed

TABLE 1—*Lung Tissue Resected in Twenty-Eight Operations*

Area Resected	No
Entire left lung	2
Lower lobe of left lung	16
Lingular segment of upper lobe of left lung	5
Lower lobe of right lung	9
Middle lobe of right lung	4

TABLE 2—*Complications in Twenty-Eight Operations*

Complications	No	Percentage
1 Mortality	0	0
2 Morbidity		
a Empyema	1	3.56
b Infection of the chest wall	1	3 56
c Infection of the wound	1	3.56
d Laryngeal edema (tracheotomy)	1	3 56

TABLE 3—*Results of Surgical Intervention on 25 Children*

Results	No of Cases	Percentage
Excellent (cured)	16	64
Good (no symptoms)	7	28
Improved	2	8

This is a plea for the early diagnosis and definitive treatment of bronchiectasis to be carried out in childhood Early treatment will obviate the hazards of bronchiectasis which must be faced if the patient grows to adult life without surgical removal of the diseased area Realtively extensive bilateral pulmonary resection can be carried out without causing the patient any kind of respiratory embarrassment

SUMMARY

1 The problem of bronchiectasis is briefly reviewed It is pointed out that the definitive treatment is surgical removal of the suppurative process and that the best results are obtained when this removal is carried out early

2 The diagnosis of bronchiectasis is made only by means of roentgen examination with the injection of a contrast medium, such as iodized oil, into the bronchi All five lobes should be adequately filled

3 The results in 25 consecutive cases of bronchiectasis in children treated surgically are presented

4 The safety of the procedure cannot be overemphasized

DELAY IN DIAGNOSIS AND TREATMENT OF CANCER

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From the standpoint of cancer control the public and medical profession have not advanced at the same rate as has knowledge of the clinical aspects of the disease. This problem is of greater magnitude each successive year because the population is aging, i. e., an increasingly larger segment of the population is surviving to reach the period of life when cancer is more frequent. The net result is a larger mortality and morbidity from cancer each year—estimated at 300,000 for 1949.

While physicians search for an adequate screening test to detect cancer or hope for a panacea, they are still faced with the current problem of attempting to reduce the number of deaths due to cancer. Today, despite considerable progress in diagnosis and therapy the only practical means of reducing the over-all mortality and morbidity from cancer is early detection of lesions and the prompt application of adequate therapy. Although it is true that newer methods or improved procedures in radiation and surgery yield larger cure rates, in the main such salvage is made up of patients with localized or relatively localized disease. It is seldom possible to reclaim the patient with advanced cancer.

In 1946 we made a comparative study of the causes for delay in the diagnosis of cancer.[1] The results were disappointing and the physician was shown at a disadvantage. A similar survey was made in 1947 and in 1948. This report is a summary of the data in these latter two years and a comparison with the previous data of 1923-1938[2] and of 1946. It is our opinion that consecutive annual studies give some indication of the trends in diagnostic delay and incidentally some evidence of the effect that the cancer educational program (lay and professional) has had in this particular metropolitan area (New York).

METHOD OF STUDY

The study of 1947 was made in the same manner as that of 1946 using a random sample of 500 patients with cancer examined from Jan. 1 to April 1, 1947. The study of 1948 ran from July 1 to December 31 and consisted of all patients (839) examined in the admitting clinic, in whom a diagnosis of cancer was proved at Memorial Hospital. No other method of selection was used. During the period covered in the 1947 study there was increased publicity concerning cancer, culminating in "cancer month." There was no such unusual publicity during the period covered in the 1948 study. The data used in both studies were obtained by physicians during the initial admitting examination, and the patients were not aware that a special survey was made. The questions were not unusual and consisted of "When did you notice your first symptoms? When did you first consult a physician?" and the like. The ground rules set by Pack and Gallo in their 1923-1938 survey[2] were used to determine culpability and delay in diagnosis and treatment.

1. The patient was considered at fault (*a*) if he delayed three months or more after first symptoms before he consulted a physician, or (*b*) if he refused to follow acceptable advice such as biopsy, roentgen studies or referral to a suitable person, hospital or clinic.
2. The physician was considered culpable (*a*) if he failed to arrive at a diagnosis in a month or when unable to do so did not refer the patient to a suitable person, hospital or clinic, (*b*) if he failed to give proper advice or counsel at all or to apply proper therapeutic measures, or (*c*) if he failed to refer the patient to a suitable person, hospital or clinic when the patient failed to improve.
3. Naturally, when a combination of the aforementioned factors was present the physician and the patient were considered jointly responsible for the delay.

Again it must be emphasized that the data obtained are solely from patients, are biased in their favor and do not necessarily portray the true situation in the area served by Memorial Hospital, much less in the county at large. However, data similarly biased are valid when used for comparison.

RESULTS

The data were first studied from the over-all point of view (fig. 1). The 1948 results are encouraging in that they show improvement over those for 1947; they are discouraging in that they are essentially the same as those in 1946. One favorable sign is a trend toward improvement, i. e., a decrease of culpability in physicians. It is slight but at least in the desired direction. The patient has improved over 1947 but only to the point where he was two years earlier in 1946.

We are still of the opinion that many patients with cancer who had previously consulted a physician had not received an adequate physical examination. To evaluate this factor in culpability and in delay in diagnosis of cancer patients were put in four groups.

1. The superficial group consisted of those with cancers that could be detected or suspected by a superficial examination. Examples are cancer of the skin, lip and anterior part of the tongue. One third of the group had cancer of the skin.
2. Those with cancers of the breast were placed in a separate category chiefly because of the publicity given to this form of cancer in the past.
3. The thorough group consisted of those with cancers that could be detected or suspected by a careful history and complete physical examination. Examples are cancer of the floor of the mouth, of the posterior two thirds of the tongue, gynecologic cancer, cancer of the distal part of the rectum and anus, and malignant lymphoma.
4. The special group consisted of those with cancers that could be detected or suspected by a careful history and complete physical examination plus roentgenographic or endoscopic studies, or both. Examples are cancer of the lung, esophagus, stomach, upper part of rectum and colon and cancer of the kidney and bladder.

Superficial Group.—The comparative data for the superficial group are shown in figure 2. It is evident that there was an improvement in all categories from 1947 to 1948, but there was no gain over 1946. It is amazing how closely the 1946 results approximate those of 1948.

Breast Group.—The breast group is the best from the standpoint of no delay. The comparative data are shown in figure 3. There has been an improvement over 1946. To the credit of the members of the medical profession the greatest improvement has been in the

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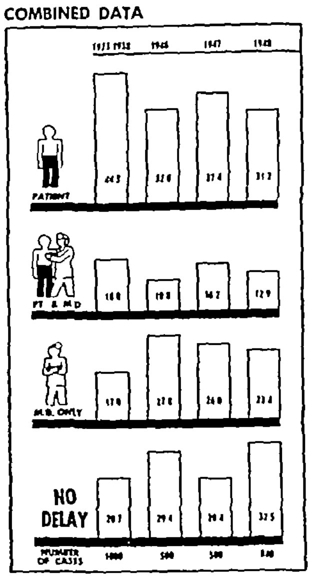
From the Medical Department and the Department of Statistics, Memorial Hospital.

[1] Leach, J. E., and Robbins, G. F.: Delay in the Diagnosis of Cancer, J. A. M. A. **135**: 5-8 (Sept. 6) 1947.

[2] Pack, G. T., and Gallo, J. S.: Culpability for Delay in the Treatment of Cancer, Am. J. Cancer **33**: 443-462 (July) 1938.

physician only category Conversely, the bulk of this effect is observed in the no delay group

Thorough Group—The comparative data for the thorough group are given in figure 4 There has been some improvement in all categories, but it is only of slight degree



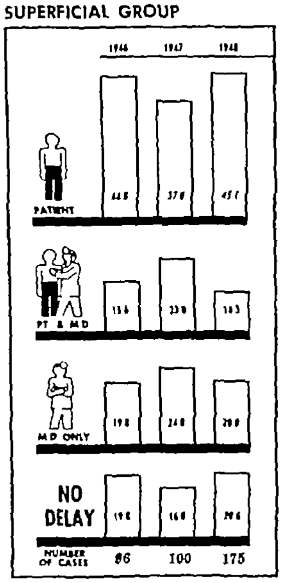
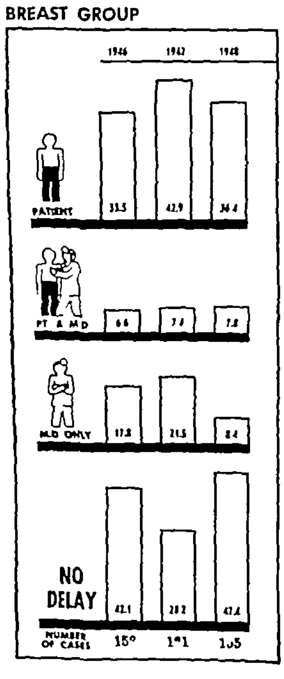


Figure 1 Figure 2

Fig 1—Combined data on culpability for delay in diagnosis and treatment of cancer Figures for *1923 1938* from Pack and Gallo[2] and for 1946 from Leach and Robbins[1]

Fig 2—Culpability for delay in diagnosis and treatment of cancer in superficial group



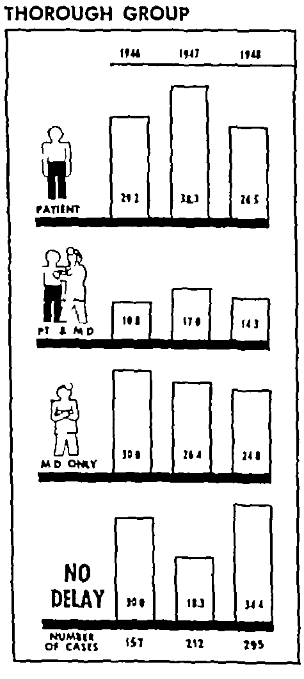


Figure 3 Figure 4

Fig 3—Culpability for delay in diagnosis and treatment of cancer in breast group

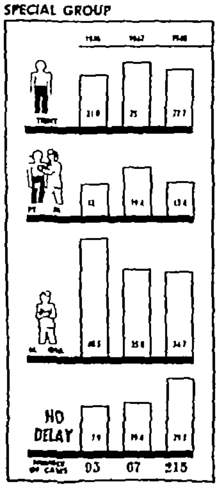
Fig 4—Culpability for delay in diagnosis and treatment of cancer in thorough group

Special Group—The data for the special group are compared in figure 5 The patient of 1948 has improved over 1947 but not quite to the level of 1946 The physicians only category has shown the most heartening improvement over 1946 but curiously not much improvement over 1947 The improvement in the no delay group is due almost solely to the better showing of the physicians This is particularly encouraging because this group includes lesions with high early mortality and with which the bulk of cancer mortality rests

LAPSE OF TIME

The data were again analyzed from the standpoint of the lapse of time between the onset of first symptoms to the first consultation with a physician and from that temporal point until a diagnosis was made and treatment started Median times in months were used

The comparative data (fig 6) reveal the encouraging trends observed There has been a consistent improvement in all groups in 1948 At least 50 per cent of the sample of patients wait a shorter time from the onset of symptoms before a physician is consulted Moreover, the patient and the physician lose less time in arriving at a diagnosis and beginning therapy One discouraging observation is the length of time it takes for the physician and the patient to arrive at a diagnosis and to start treatment in the special group Of all the groups, this is one in which speed in diagnosis and rapid institution of therapy are of the utmost importance



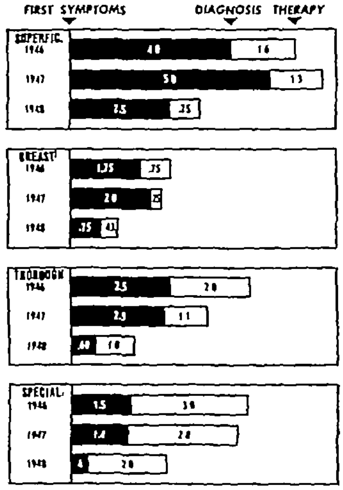


Figure 5 Figure 6

Fig 5—Culpability for delay in diagnosis and treatment of cancer in special group

Fig 6—Comparison of time lapse (median in months) for the superficial breast thorough and special groups in 1946 1947 and 1948 from detection of first symptoms to verification of diagnosis and institution of treatment

COMMENT

On cursory review, these data are not as encouraging as might have been hoped, considering the tremendous efforts that have been spent in education However, there are certain distinct signs of improvement The physicians have lessened delay in diagnosis significantly since 1946 except in lesions of the superficial group There has been a sizeable gain in rapid diagnosis and treatment for patients in the breast, thorough and special groups The reduction of delay in the breast group is of the greatest magnitude (more than 50 per cent) In the special group in which diagnoses are certainly more difficult and time consuming, requiring greater cooperation on the part of the patient and the physician the improvement is no less encouraging This is the group in which the mortality is extremely high and in which such gains mean saved lives

Another encouraging aspect of these data is the decided decrease in the time both from the onset of first symptoms to first consultation and from first consultation to diagnosis and the start of therapy This also results in increased survival rates

The slow decrease in delay on the part of the patient is discouraging The reasons for patient delay are not always easy to determine In a parallel study by the Social Service Department of this hospital on diagnostic delay in the patient with cancer, one factor stood out The clinic patient, and this probably applies to the average patient, handles an illness due to cancer much the same as he has handled similar life situations in the past The patient who is accustomed to face reality or who fears physical pain or disability and who is accustomed to seek medical aid promptly also seeks help quickly when his illness is due to cancer Conversely, the patient who in the past had to be forced by circumstance, intractable pain or the pressure of family or friends to seek medical aid acts the same way when his illness is due to cancer One might state that in a given patient the reaction pattern is set long before the cancer develops Economic status seemed to be of no consequence in the group of patients studied so far as delay or nondelay was concerned Better levels of intelligence and education were factors favoring nondelay Unfortunately, data on those in the age groups 60 and over were the least encouraging Delay was greater in these patients

These observations have meaning and are not based on one isolated study Similar conclusions were reached in an independent survey by a different social worker in the same hospital in 1947 They mean in part that the educational program, which must include propaganda is the only practical weapon at present to combat inertia and ignorance

A large segment of the population is never reached or affected by many phases of the educational program This is not a criticism but simply a statement of fact One phase of the educational program that will reach a large portion of the population, especially those in the desired age groups (40 years and older) is the type of steady enlightening propaganda that the individual physician can spread Not the least important measure is the routine annual physical examination This is too great a task to impose on the cancer detection clinic Each physician has his own detection clinic in his office and hospital Let them be used!

This study, in contrast to that of 1946, indicates that the physician is improving in his handling of patients in the breast, thorough and special groups, although he has not lessened delay in detecting lesions of the superficial group Moreover, the total delay period (time lapse) has been shortened Both these improvements mean increased human salvage

CONCLUSIONS

1 A comparative study of delay in the diagnosis of cancer covering four periods (1923-1938, 1946, 1947 and 1948) shows improvement over 1923-1938 but no gains since 1946

2 Despite the lack of gross improvement, patients are losing less time between the onset of first symptoms and the first consultation with a physician

3 The gross reduction in delay since 1946 has been due to an improvement on the part of the physician

4 In addition, physicians are losing less time between the time of first consultation and the time the diagnosis is established and therapy is applied

5 Certain aspects of the cancer control problem in the light of these data have been discussed

Q FEVER TRANSMISSION FROM ONE HUMAN BEING TO OTHERS

Report of Three Cases

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An epidemiologic study of Q fever, as made in the endemic area of southern California, suggests three modes in which the infection may be spread (*a*) occupation in dairy or livestock industries, (*b*) use of raw milk and (*c*) residence within ¼ mile of places where cattle are maintained or beef is processed[1] It has been estimated that more than 10 per cent of the cattle in this region are infected with Coxiella burnetii, the etiologic agent of Q fever, and that more than 50 per cent of the raw milk produced in this area is infective for guinea pigs[2] Cases of Q fever have occurred among slaughterhouse workers[3] and laboratory technicians[4] C burnetii has been found in ticks,[5] and 1 case has been reported in which the infection was probably caused by the crushing of ticks between the fingers[6]

It has been stated repeatedly that Q fever is rarely, if ever, transmitted from one human being to another[7] Six instances of multiple cases in the same household have been reported, but the patients were probably infected from identical sources rather than by human contact[1] Three clinical and 3 subclinical cases have been reported which resulted from the handling of contaminated material[8] Several autopsy attendants apparently acquired an infection through contacts with Q fever victims[9]

That human to human transmission of Q fever exists was suggested by our recent observation of a patient acutely ill with Q fever and the subsequent appearance of the disease in fourteen to twenty-three days in 3 persons who attended him They had symptoms clinically compatible with Q fever and serologic tests positive for the disease

The serums of 26 other persons in contact with this patient were tested for the presence of complement-

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From the Medical Service Wadsworth Hospital Veterans Administration Center resident in medicine (Dr Deutsch) and serologist laboratory service (Mr Peterson)

Sponsored by the Veterans Administration and published with the approval of the chief medical director The statements and conclusions of the authors are the result of their own study and do not necessarily reflect the opinion or policy of the Veterans Administration

Drs M Mieras and M Weiss assisted in the ward care of patients

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fixing antibodies to C burnetii antigen Of these, 2 had positive tests (1 64 titer) but were asymptomatic The titer of 1 dropped to 1 32 two months later The other was not available for follow-up It cannot be stated that these antibody responses resulted from a previous exposure to Q fever or from a subclinical infection resulting from this exposure

Another contact who was also a roommate of a patient (case 3) with the disease, became ill two days after the latter with symptoms suggestive of Q fever These included sweats, shaking chills, fever, retrobulbar headache and anterior chest pain bilaterally These symptoms subsided in four days The serologic test for Q fever performed one month later was negative This may represent a case of Q fever without production of a perceptible antibody response

None of the personnel resided near a dairy, had contact with livestock or ingested raw milk, however, they did handle bed linen, clothes, bed pans and food trays of the patient (case 1) and had personal contact with him No conclusions could be made as to the possible mode of transmission in these cases

REPORT OF CASES

Case 1—C W (the patient who is presumed to have infected the nurse and attendants) was a man 55 years of age, an unemployed mechanic and salesman, who lived more than 2 miles from a dairy or stockyards and had not been outside the immediate vicinity of his home for several months prior to this illness He had had no previous similar illness For the past two years he had consumed an average of 1 pint (473 cc) of raw milk daily from the same dairy He lived with his brother and sister in-law who also drank raw milk but who were serologically negative for Q fever

The onset of his illness occurred on May 1, 1949 with malaise, shaking chills, fever, lassitude and drowsiness His physician administered penicillin Four days later the patient manifested delirium, which persisted for nine days Eight days after onset (May 8) he was admitted to the hospital He was disoriented, confused and acutely ill The posterior pharynx was diffusely reddened The chest was dull to percussion and had decreased tactile fremitus over the left base posteriorly and laterally The remainder of the physical examination was noncontributory

A roentgenogram of the chest showed diffuse density of the lower portion of the left lung Subsequent roentgenograms showed gradual resolution of this process Unfortunately, a blood specimen was not taken during the acute stage of the illness for the complement fixation test with C burnetii antigen[10] Subsequent blood specimens were positive for Q fever in the following dilutions June 3, 1 8,092, June 17, 1 8 092, August 2, 1 2,048, and September 22, 1 2,048 The June 17 specimen was positive in a 1 4 096 dilution when tested concurrently On admission the urine contained albumin (4 plus) and many coarse granular casts This observation disappeared after hydration The initial blood count was 3 600 000 red blood cells with 70 per cent hemoglobin and 2,400 white blood cells with 60 per cent neurtophils and 32 per cent lymphocytes Subsequent counts showed a persistent leukopenia and granulocytopenia with 0 to 9 per cent neutrophils The sedimentation rate was 35 mm in one hour with the Cutler method The routine agglutination tests for typhoid, paratyphoid, brucella and Proteus (Weil Felix) were negative The cold hemagglutination and heterophil antibody tests were negative Spinal fluid examination gave normal results Spinal fluid and blood cultures were sterile A positive reaction of his blood to the Kahn test, which was observed during the acute stage of his illness became negative during convalescence. Reaction to the Kolmer modification of the Wassermann test was negative at all times

At the time of admission it was believed that the patient had a severe case of pneumonia with toxic depression of the granulocytes He was treated with oxygen, penicillin and sulfadiazine Since he showed no response to this therapy after two days, he was started on 4 5 Gm of aureomycin hydrochloride orally and 1 Gm of streptomycin hydrochloride intramuscularly daily He was also given multiple blood transfusions His temperature continued to show a daily rise to 106 F rectally for six days Then he began to improve, and six weeks later, when he was asymptomatic, aureomycin therapy was discontinued He continued to be asymptomatic.

The granulocytopenia, which persisted even after convalescence, was difficult to explain The patient had taken cinchophen for several months prior to entry and a high potency vitamin D preparation for four years However, there was no improvement in his blood picture following the withdrawal of the drugs Several months later the patient was readmitted to the hospital with severe furunculosis The blood picture was the same. After repeated blood and marrow studies he underwent a splenectomy for presumed hypersplenism Postoperatively his white blood cell count rose and stabilized at 5,200 cells with 31 per cent neutrophils and 58 per cent lymphocytes

Case 2—L L, a woman aged 48, was the nurse who attended the first patient (case 1) from the time of his admission On May 31, twenty-three days after the first patient was admitted, she complained of supraorbital headache, nausea, chills and mild fever Four days later these symptoms had intensified and, in addition, she had shaking chills and complained of lethargy The next day she had vertigo, more generalized headache, mild nonproductive cough, dysuria and urinary frequency Her physician prescribed penicillin and a sulfonamide drug, but there was no improvement Five days later, or ten days after the onset of her symptoms, she was admitted to the hospital She was acutely ill Her temperature was 100 F orally, and she had a slightly injected pharynx

The roentgenogram of the chest showed pneumonia in the left upper lobe The blood was normal except for a mild secondary anemia Routine agglutination tests were negative. The urine was normal Reactions of her serum to C burnetii antigen were as follows July 1, 1 64, July 20, 1 128, and September 8, 1 64 Two days after admission the patient was afebrile After twenty-two days the pneumonia showed complete resolution by roentgen observation This case followed the usual pattern for Q fever, except for lack of a daily rise in temperature

Case 3—A McI, a white man aged 33, was an attendant of the first patient (case 1) from the time of his admission Two weeks later (May 22) he noted decided tiredness and malaise The next day he had shaking chills, fever (103 F orally), left frontal headaches, sweats and right anterior chest pain of pleuritic type with mild nonproductive cough He entered the hospital four days after the onset of symptoms He was acutely ill The only findings of note were occasional crackling rales at the right lung base posteriorly and in the right axilla The temperature was 103 8 F rectally

A roentgenogram of the chest showed infiltration at the right lung base medially One month later this showed complete resolution The blood count was within normal limits The urine contained albumin (2 plus) This observation disappeared during convalescence. Routine agglutination tests and blood cultures were negative The results of the complement fixation tests to C burnetii antigen were as follows May 31, less than 1 8, June 16 1 256 and July 26, 1 512 The patient had a daily rise in temperature to 103 F orally for six days, after which he was afebrile

Case 4—A G, a white man aged 61, was an attendant of the first patient (case 1) from the time of his admission Twenty-two days later (May 30) he had a fever (102 F orally), retrobulbar headaches, chills, sweats and a mild, nonproductive cough He was ill at home for a week but did not seek medical care After his return to work the connection between his illness and the other cases was suspected and a complement fixation test for Q fever was performed July 25 It was positive in a 1 64 serum dilution A specimen taken September 6 was anticomplementary Although a diagnosis of Q fever cannot be made on the basis of the serologic test alone, and since a rise in titer was not demonstrated, the diagnosis has been made because of the clinical symptoms, exposure to the first patient, the positive serologic test and the onset of illness concurrent with the other cases

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[10] All complement fixation tests with the C burnetii antigen were performed at the Viral and Rickettsial Disease Laboratory Division of Laboratories California State Department of Public Health 1392 University Avenue Berkeley 2 Calif

SUMMARY

1 A case of Q fever with apparent transmission of the disease to 3 other persons is reported

2 The mode of transmission was not determined

BETA-GLUCURONIDASE STUDIES IN WOMEN

I Observations in 500 Nonpregnant, Noncancerous Subjects

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The increasing interest in the beta-glucuronidase activity of body tissues and fluids in health and disease has made urgent the report of an adequate control series A systematic study of vaginal fluid and cervical biopsy specimens has been undertaken in this laboratory on several groups of women in an attempt to establish the base line control levels for normal women The findings and a discussion of the present concepts of their physiologic import are reported in this, the first of our series of papers on this subject The method for collecting the specimens and the procedure for handling the material will be described in detail, together with an analysis of the results in a study of 500 nonpregnant, noncancerous women [1] Subsequent papers in this series will deal with additional aspects of the beta-glucuronidase activity of tissues, fluid and venous blood in physiologic and pathologic states in women

Beta-glucuronidase is an enzyme widely distributed in mammalian tissues, whose function, properties and behavior have recently been reviewed [2] Experiments with mice [3] and observations in pregnant women [4] have indicated its role in the action and metabolism of estrogenic hormones It has been found in human cancer tissue [5] in higher concentrations than in healthy tissue in the majority of cases The presence of a striking difference in the glucuronidase activity of cervical cancer tissue led Odell [6] to state that the glucuronidase activity of the vaginal fluid could be used as a diagnostic aid in detecting cervical cancer The present data have been collected with a view to making comparisons later with observations on women with treated and untreated cancer of the cervix

METHOD

The vaginal fluid in the subjects studied in this report was obtained in a simple and standard manner The specimens were secured before any vaginal examination, whether digital or instrumental had been made Lubricating jelly was not used and douches were interdicted for twelve hours before the specimens were obtained The standard Papanicolaou glass pipet was used, 16 cm long and 0 6 cm in diameter, with the distal end polished to reduce the capillary bore to approximately one third of the original diameter A standard Papanicolaou 2 ounce rubber suction bulb was attached to the dry, clean pipet and the vaginal fluid was obtained by the method used in the cytologic study of exfoliated cells The bulb is compressed, the pipet inserted high into the posterior vaginal vault and the fluid collected in the pipet by releasing the bulb and slowly sweeping the pipet across the vagina as it is being withdrawn The fluid is then expelled from the pipet by means of the bulb into carefully weighed standard Wassermann tubes, 10 cm long and 1 3 cm in diameter, marked with a diamond point pencil for identification There is usually sufficient material in the pipet for the preparation of slides for the cytologic study of exfoliated cells This procedure was carried out with the majority of specimens as an additional control and to assist in interpretation of the findings The specimens were usually kept at 4 0 C until the analysis was made

The weight of the tube with the vaginal fluid specimen was recorded, and the contents were well mixed by means of a close-fitting glass rod attached to a rotating electrical motor shaft A total of 3 cc of tenth-molar acetate buffer (p_H 4 5) was employed The glucuronidase activity of such suspensions of vaginal fluid was found to remain stable in the cold for at least twenty-four hours Values obtained on specimens below 5 mg in weight were regarded as unreliable and discarded As a rule specimen weights ranged between 10 and 50 mg, and even with amounts of approximately 100 mg, valid results, as proved by multiple samples, were obtained

The use of an immunologic pipet for sampling vaginal fluid was found to be impractical In only 1 of 4 women could sufficient fluid material be obtained, and variation in the consistency rendered uncertain the exact amounts actually being assayed for enzyme activity The inside of the pipet would often be coated with sticky secretions, simulating a false fluid volume level

From the well suspended homogenate, 0 1 cc portions were pipetted first into two Wassermann tubes containing 0 8 cc of tenth-molar acetate buffer (p_H 4 5) and 0 1 cc of hundredth-molar phenolphthalein glucuronide and then into a third tube containing 0 8 cc of tenth-molar acetate buffer These tubes were incubated overnight at 38 C, and the reaction was stopped after the time had been recorded by placing the digests in boiling water for one minute This procedure of deproteinizing was more satisfactory than trichloracetic acid precipitation One and five-tenths cubic centimeters of water were added, and, after centrifuging, 2 0 cc of each of the supernatants were transferred to Evelyn cuvettes, 2 5 cc of alkaline glycine reagent,

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Miss Margit Olsen, of the Cytology Laboratory New England Center Hospital read the smears in this study

From the Cancer Research and Cancer Control Unit of the Department of Surgery and the Departments of Medicine and Biochemistry, Tufts College Medical School, Boston

This study was aided by grants from the United States Public Health Service the American Cancer Society Inc New York and the Damon Runyon Memorial Fund for Cancer Research New York

[1] The subjects were obtained from the Tumor Clinic of the Boston Dispensary, the New England Center Hospital the Holy Ghost Hospital the Jewish Memorial Hospital and from the private patients of one of us (S C K)

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[5] Fishman, W H, Anlyan, A J, and Gordon E β Glucuronidase Activity in Human Tissues Some Correlations with Processes of Malignant Growth and with the Physiology of Reproduction Cancer Research **7** 12, 1947, A Comparison of the β-Glucuronidase Activity of Normal, Tumor and Lymph Node Tissues of Surgical Patients, Science **106** 66 1947, The Presence of High β Glucuronidase Activity in Cancer Tissue, J Biol Chem **169** 449, 1948

[6] (*a*) Odell L D, and Burt, J C β Glucuronidase Activity, Science **109** 564, 1949 (*b*) Odell, L D, Burt, J C, and Bethea, R β Glucuronidase Activity in Human Female Genital Cancer, Cancer Research **9** 362, 1949

1 cc of 5 per cent trichloracetic acid and water to complete the 6 cc volume were then added, in the order given The reading of the optical density and calculation of results were performed exactly as described previously,[7] taking into account that 2 cc of a total of 2 5 cc were taken for color development

Tissue specimens were collected in weighed tubes, homogenized in acetate buffer and assayed for glucuronidase activity Multiple specimens of vaginal fluid or of degenerating cervical cancer may sometimes show a variation as great as 50 per cent Accordingly, whenever possible, we have taken duplicate specimens of fluid and tissue A number (106) of cervical biopsy specimens have been assayed for beta-glucuronidase activity, which has been correlated with the histologic state of the tissue

RESULTS

A total of 500 nonpregnant women without clinical, cytologic or pathologic evidence of cancer have been studied for this report The age distribution of these subjects is uniform and follows closely the standard age distribution, from the age of 40 years upward, for women in the Commonwealth of Massachusetts (fig 1) The glucuronidase values have been recorded for statistical purposes, first in ranges of 300 to 900 units and then at levels of 1,500 to 4,500 units These points for analysis were arbitrarily chosen in order to make possible convenient comparisons of these data with that on cancer subjects

These women have been divided arbitrarily into age groups of 20 to 40, 41 to 60 and 61 to 90 years The percentage of specimens studied in women of each age group has been related to beta-glucuronidase activity in figure 2 It will be noted that the range of beta-glucuronidase activity falls between 0 and 4,500 units in noncancerous, nonpregnant women It is especially noteworthy that an attempt to establish, in vaginal fluid evaluation, a critical value for cancer set arbitrarily at either 300 or 600 units would of necessity be difficult It can be seen from table 1 that 65 3 per cent of the total number of observations made show values below 300 units An additional 15 3 per cent of observations show values between 300 and 600 units The remaining 19 4 per cent show values between 600 and 4,500 units

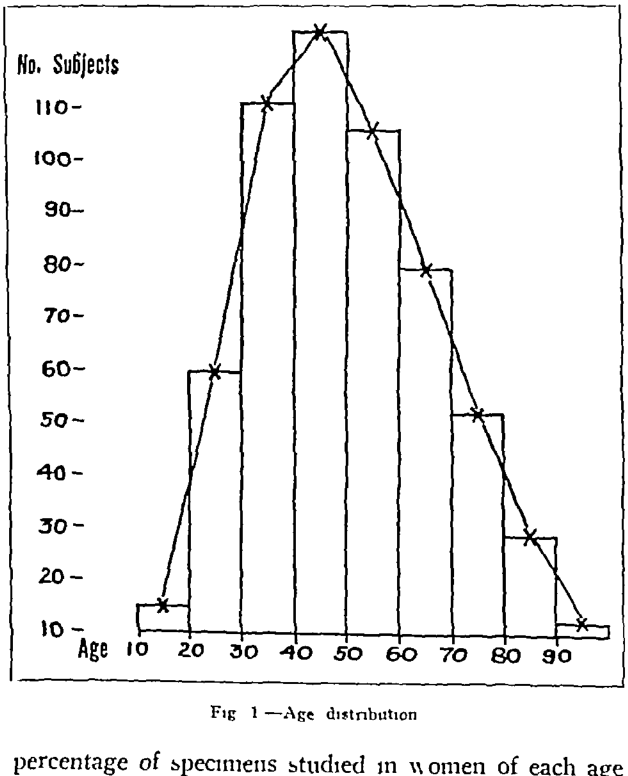

Fig 1 —Age distribution

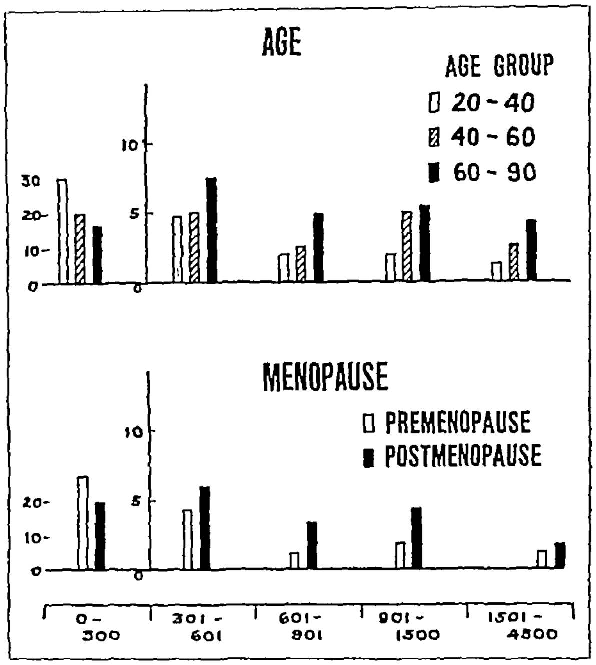

Fig 2 —Relationship of the percentage of specimens studied in each age group to the beta glucuronidase activity The horizontal line of figures at the bottom represents the beta glucuronidase activity of the vaginal fluid while the vertical line of figures at the left represents the percentage of total observations

The significant aspect of figure 2 is the strong tendency for women over 40 years of age to make up an increasingly greater proportion of the values over 300 units When the subjects are divided into premenopausal and postmenopausal groups, this tendency for increase in proportion at the higher levels is accentuated Of the 500 women, 168 were postmenopausal subjects In 51 of these the menopause had been surgically induced In the majority of the remaining subjects the physiologic menopause had occurred between the ages of 48 and 52 years, a level consistent with the standard age for the menopause in this climate In table 2 the data on women before and after the menopause have been related to age

The results of examination of exfoliated material from vaginal fluids, aliquots of which were studied for β-glucuronidase activity, are shown in table 1 The classification suggested by Papanicolaou was used in grading the cytologic smears Class 1 represents the completely normal cytologic smear Class 2 represents the unquestionably benign smear which has some aberrations from the normal, such as an excessive number of pus cells, aberrant normal cells and atypical estrogen levels for the expected physiologic normal in the subject studied.

Classifications higher than 2 were not encountered in this study, since in no instance were suspicious or frankly cancerous smears found Of the 323 cytologic smears which were class 1, a total of 237 (73 5 per cent) were found in patients with beta-glucuronidase values below 300 units On the other hand, 44 (36 5 per cent) of a total of 120 smears which were class 2 were from patients with a range of up to 300 units for beta-glucuronidase activity This suggests a study of the relationship between the presence or absence of gynecologic complaints in these women, and these data are given in the last section of table 1 The discrepancy between the total number of subjects studied and the number of beta-glucuronidase values recorded is due to the fact that several specimens were obtained from some persons, and every specimen was given equal weight in the analysis of results

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TABLE 1—*Facts Related to the Distribution of Glucuronidase Values of the Vaginal Fluid*

Beta Glucuronidase Units	No of Studies of Vaginal Fluid	No of Studies of Exfoliated Cells		No of Patients with Gynecologic Complaints	No of Patients Without Gynecologic Complaints
		Class 1	Class 2		
0- 100	247	143	15	69	178
101 200	115	62	13	39	76
201 300	66	32	16	32	34
301 400	45	18	10	16	29
401 500	23	8	6	13	10
501 600	35	13	13	19	16
601 700	15	5	6	10	5
701 800	15	4	5	9	6
801 900	13	8	4	9	4
901 1,000	17	6	2	9	8
1,001 1,500	30	12	13	20	10
1,501 2,000	14	9	2	9	5
2,001 2,500	13	1	8	11	2
2,501 3,000	2	1	1	2	
3,001 3,500	4	1	2	4	
3,501 4,000	2		3	2	
4 001 4,500	2		1	2	
Total number of observations	658	323	120	275	383
Number of patients	500		443	174	326

TABLE 2—*Relation of Frequency of Observations to Age, the Menopause and Beta-Glucuronidase Activity in Noncancerous, Nonpregnant Women*

Units *	21-40 Years	Premenopause 41-60 Years	Post menopause 41 60 Years	61 90 Years
0- 50	69	22	28	25
51 100	41	18	24	27
101 150	18	10	11	18
151 200	16	14	11	18
201 250	10†	8	17	5
251 300	5	1	10	10
301 350	5	2	1	8
351-400	3	4†	0	0
401-450	2	2	2	1
451 500	3	1	2	4
501 550	3	2	4	7
551 600	1	3	6	7
601-650	1	0	1	4
651 700	2	0	2	5
701 750	0	0	1†	2
751-800	1	1	4	6†
801-850	2	1	2	0
851 900	0	2	3	2
901 950	0	2	2	1
951 1,000	2	2	3	3
1,000 and up	6	8	19	30
Total number	190	98	162	192

* The mean beta glucuronidase values in the age group of 21 to 40 years was 192 units, in the age group of 41 to 60 it was, premenopause, 300 units and, postmenopause, 526 units, and in the age group of 61 to 90 it was 508 units

† Level below which 80 per cent of women in the age group are found

It will be noted that 51 0 per cent of the 275 observations in patients with clinical gynecologic complaints showed beta-glucuronidase values of less than 300 units Women without clinical gynecologic complaints who had beta-glucuronidase values below 300 units represent 75 per cent of a total of 383 observations Patients with frank clinical or laboratory evidence of Trichomonas vaginalis infection are included in the group with gynecologic complaints There is a tendency, noted in the sections on exfoliated cells and gynecologic complaints of table 1, for the presence of aberrations from the cytologic and clinical normal to be associated with values above 300 units

In view of the statement [6b] that the presence of blood in the vaginal fluid reduces its glucuronidase activity, it should be noted that our data do not include appreciable numbers of sanguineous specimens

The 79 observations on women who have undergone hysterectomy were divided into two groups, one of 46 observations on women who had undergone supracervical procedures and another of 33 observations on women who had undergone panhysterectomy Seventy-four per cent of the subjects possessing a uterine cervical stump had vaginal fluid glucuronidase values below 300, which is a significantly greater percentage than occurred in subjects who had had panhysterectomy (43 per cent) Patients in the panhysterectomy group had values above 300 units twice as frequently as did those with supracervical hysterectomy (table 3)

TABLE 3—*Relationship Between Beta-Glucuronidase Activity in the Vaginal Fluid and Hysterectomy*

Beta-Glucuronidase Units	Supracervical Hysterectomy		Panhysterectomy	
	No	%	No	%
0-100	18	39 2	6	18 0
101 200	7	15 3	5	15 0
201 300	9	19 5	3	10 0
301-400	3	6 5	1	3 0
401-500	1	2 1	2	6 0
501-600	1	2 1	2	6 0
601 700	1	2 1	1	3 0
701 800				6 0
801 900	1	2 1	2	
901 1,000	1	2 1	2	6 0
1 001 1,500	2	4 2	4	12.0
1 501 2,000			2	6 0
2,001 2,500	1	2 1		
2,501-3,000			1	3 0
3,001-3,500	1	2 1	2	6 0
3,501-4,000				
Total	46		33	

Active cultures of Trichomonas vaginalis hominis protozoa were obtained, and beta-glucuronidase determinations were done on the uncentrifuged culture, the centrifuged supernatant and the Trichomonas organisms laked, lysed and homogenized with water The activities of the uncentrifuged and centrifuged cultures were identical with those found in the sterile medium itself (which contains a slight amount of enzyme derived from the human serum present) The laked organisms showed no beta-glucuronidase activity whatsoever Vaginal fluid specimens taken at intervals of several days over a period of months in regularly menstruating women showed cyclic changes in the glucuronidase activity

Results of glucuronidase assays in 8 pregnant women showed a range of values from 0 to 1,930 units of activity, with 3 above 300 units and 5 showing less than 300 units of activity It is apparent from this small number of studies that pregnancy does not uniformly result in a high glucuronidase activity in the vaginal fluid

COMMENT

A suitable control series of observations is essential for the proper interpretation of beta-glucuronidase values obtained in cancerous and benign conditions It is felt that 500 nonpregnant, noncancerous subjects are an adequate number for statistical analysis It has been reported that in the pregnant state the beta-glucuronidase values in the vaginal fluid are elevated[6] Since pregnant women were not included, our incidence of high beta-glucuronidase values is lower than it would have been in a series including both pregnant and nonpregnant women Another factor, the presence of T vaginalis infection, stated to account for high vaginal glucuronidase values, was operative in an undetermined number of our subjects

Recent information indicates that 68 per cent of women who show no T vaginalis in the hanging drop preparation reveal the presence of the protozoa in culture preparations[8] On this basis, the total incidence in women of T vaginalis infections may approximate 80 per cent Accordingly, the presence or absence of these infections may well have a limiting effect on the incidence of high values In our experience, both low and high values have occurred in the presence of frank T vaginitis infection Since active pure cultures of the motile protozoa and the lysed organisms themselves contain no appreciable amount of the beta-glucuronidase enzyme, the impression is strengthened that the part played by the Trichomonas organisms in some of the high values encountered is of less importance than has been implied[6] Nevertheless, a search should be made into the mechanisms by which the presence of Trichomonas in the vagina may influence the beta-glucuronidase activity of the vaginal fluid, a problem under investigation

The age distribution in this series is sufficiently wide to offer an over-all picture of the glucuronidase values to be expected in any age group from 20 to 90 years The subjects have been divided into three age groups, 20 to 40, 41 to 60 and 61 to 90 years, so that the age group in which cancer of the genital tract in women is most frequent (41 to 60) could be delineated

The data have been grouped in multiples of 300 units not only for statistical evaluation but also because the value of 312 units was stated to be the one which divided patients with cervical cancer from those without it[6b] The range of values for all observations is great, from 0 to as high as 4,500 units per gram of vaginal fluid The group having the predominant number of values below 300 units is made up of women aged 20 to 40 Since these women represent 40 per cent of the total number studied, an appreciable number (52) have values greater than the arbitrary level of 300 units Women in the age group in which cancer of the genital tract is most frequent (41 to 60) and particularly those above it had the majority of the values above 300 units This suggests that the origin of vaginal glucuronidase enzyme has some relation to the process of aging

It should especially be noted that the age groups in which genital cancer is prevalent are those in which noncancer controls have higher values Thirty-four per cent of the 658 observations showed values higher than 300 units If this arbitrary level is used as a dividing line for the diagnosis of cervical cancer, one third of the female population would fall into this category The inclusion of pregnant women would only serve to increase this figure Other significant data may be computed from figure 2 Thus, 77 per cent of women in the age group 20 to 40, 59 per cent in the group 41 to 60 and 43 5 per cent in the group 61 to 90 have vaginal fluid values below 300 units per Gm

With regard to the menopause, there is a significantly greater incidence of high beta-glucuronidase values in the vaginal fluid in women after the menopause As the beta-glucuronidase level increases, postmenopausal women predominate to a noticeable extent, which is consistent with the relationship to age discussed previously Of the total number of women in the 41 to 60 age group (260), 98 were premenopausal and 162 postmenopausal The principal difference in these two groups is the functional state of the ovaries, and it is interesting to note that women in this age group after the menopause average 525 6 units and before menopause 299 7 units of activity per gram of vaginal fluid In this respect, in a total of 11 patients who had undergone bilateral oophorectomy, the average value for glucuronidase activity in the vaginal fluid was 1,110 units, with a range of 0 to 3,460 All these considerations are suggestive of a role for the functioning ovary in determining the glucuronidase activity in the vaginal fluid

It is too early to attach a great deal of significance to the numeric averages, since the figures include values over 1,000 units in appreciable numbers, while the bulk of the data is found below 300 units However, it is possible to establish values from table 2, from which one may predict from our present data the level below which 80 per cent of women in a given age group would fall These values, we feel, may be employed as tentative standards for making comparisons with the glucuronidase activity in the vaginal fluid in varying groups of women

It should be noted that the 80 per cent level in women aged 20 to 40 is at most 250 units, in those aged 41 to 60, premenopausal, 400 units, and postmenopausal, 750 units, and in those aged 61 to 90, 800 units The most significant aspect of these data is that if 300 units were taken arbitrarily as the level which divides, with 80 per cent accuracy,[9] those women without cancer from those with the disease, a gross error would be evident in women over 40 after the menopause

Cytologic studies of exfoliated material are being used to advantage in identifying early cancerous lesions of the genital tract which might escape identification by clinical examination False negative results in patients with cancer of the cervix make up not more than 10 per cent of the results reported by a number of investigators[10] The experience of our cytologic laboratory is consistent with these findings The fact that in no instance was a positive cancer smear observed independently in 443 subjects eliminates for all practical purposes the possibility that an appreciable number of our high values of beta-glucuronidase activity in the vaginal fluid were due to unsuspected and undiscovered cancer of the cervix We have found the cytologic study of exfoliated material indispensable for the evaluation of these data

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[8] Williams M H A Study of the Trichomonad Population in Experimentally Infected Rhesus Monkeys I The Efficiency of Intensive Microscopic Search Compared to Culture Technique Am J Obst. & Gynec to be published

[9] Dieckmann W J in discussion on Graham R M and Meigs J V The Value of the Vaginal Smear Am J Obst. & Gynec. 58:849 1949

[10] Gates O and Warren S A Handbook for the Diagnosis of Cancer of the Uterus by the Use of Vaginal Smears Cambridge, Mass Harvard University Press 1947 pp 51 52 Graham R. M and Meigs J V The Value of the Vaginal Smear Am. J Obst & Gynec. 58 843 1949

The difference between those subjects with gynecologic complaints and those without gynecologic complaints in respect to the level of beta-glucuronidase activity in the vaginal fluid is not of sufficient magnitude to warrant interpretation This appears to make the selective value of gynecologic complaints unsatisfactory as the sole criterion for the use of beta-glucuronidase determinations in subjects who may have cancer Additional study of the parts played by the ovary and the pituitary and adrenal glands, as well as cultural diagnostic study of Trichomonas, may serve to clarify, in cytologic and clinical studies, aberrations from the normal found to be frequently associated with beta-glucuronidase values in the vaginal fluid above 300 units

Elimination by surgical means of the uterine corpus, with or without the cervix, offers some insight into the source of vaginal fluid glucuronidase The range of values (table 3) falls between 0 and 3,500 units Especially noteworthy is the fact that patients in whom the entire uterus and cervix have been ablated make up a significantly larger proportion of the group with values above 300 units This signifies clearly that the presence of the uterine corpus and cervix are not fundamentally essential for the presence of high enzyme values The part played by the presence of ovarian tissue in the group of women who had undergone hysterectomy is of great significance and should be further evaluated

TABLE 4 —*Beta-Glucuronidase Activity in Benign Uterine Cervix*

Patient	Units/ Gm *	Patient	Units/ Gm *	Patient	Units/ Gm *	Patient	Units/ Gm *
B R	151	D R	11	K A	150	R A	60
B D	130	E F	161	K	32	T	341
B B	170	F M	200	K M	178	T S	99
B E	334	G P	0	L E	116	W M	145
B M	92	G R	533	M N	210	W B	219
B R	250	G R	22	N S	203	W K	97
C O	157	G R	286	R	257	Z S	161
O M	0	G S	138	S M	193		
C S	240	H	77	S M	39		
D C	52	H E †	31, 30,	S A	110		
D B	165		30, 67,	S R	126		
D B	92		32	R G	212		
D N †	328, 364,	I H	156	R E	83		
	429, 189	J O	27				

* The average was 153 units of activity per gram of fluid The range of activity was 0 to 533 units

† Multiple specimens

With respect to the beta-glucuronidase activity of cervical tissue, the group with cervical cancer has shown a much higher level of the enzyme, as compared with the control group (tables 4 and 5) It is of interest to note that specimens obtained beyond the gross limits of cervical cancer have beta-glucuronidase values falling well below 300 units Biopsy specimens obtained in the same subjects from the cancerous lesion universally showed values above 500 units (table 5) In but one instance of 45 was there a value higher than 500 units in tissue obtained from the benign cervix This would lead us to believe that the study of glucuronidase activity in vaginal fluid must be evaluated separately from similar studies carried out on biopsy specimens Recent histochemical studies corroborate the characteristic high beta-glucuronidase values in cancerous tissue[11]

TABLE 5—*Beta-Glucuronidase Activity in Untreated Cervical Cancer*

	Units/Gm *			Units/Gm *	
Patient	Involved†	Uninvolved‡	Patient	Involved†	Uninvolved‡
A V §	1,745, 2,470		P A	644	
A M	765		R M	2,020	339
C C	555	55	S M	1,375	138
D A	641		T A	1,510	
D H §	820	51, 95, 50	W C	595	
F C §	1,600, 720		R §	793, 1,021	
G M F	1,175			682	
M §	820, 1,510		M H §	1,120, 5,950	
M S §	3,810 5,320			926, 1,600	
	2,280, 2,450		V F §	1,510, 1,000	
	2,360, 1,245			1,390	
	2 070, 2,915		B R §	700, 1,920	
M A	1,610			1,640, 2,319	
M M	2,350			2,880, 648	
P L	1,103		F V §	2,016, 930	
				1,510, 2,130	

* The average was 1,647 units of activity per gram of fluid The range of activity was from 555 to 5,950 units

† The heading Involved" indicates that the source of the specimens was typical cancerous tissue obtained in a biopsy of the uterine cervix

‡ *The heading Uninvolved" indicates that biopsy specimens were obtained, in the same patients, outside the limits of the gross cancer tissue in the cervix*

§ *Multiple specimens*

In the course of this study, we have encountered several pitfalls which deserve mention Uniformity in the sampling technic is important, and duplicate specimens should be analyzed whenever possible The weight of the specimen has been found much more dependable than the volume as a basis of expressing the results A minimum degree of handling and treatment of the material is desirable

SUMMARY

Five hundred nonpregnant, noncancerous women were studied with regard to beta-glucuronidase activity in vaginal fluid and, in 45 of these, in cervical tissue The age group into which subjects fall is of importance in interpreting the incidence of high values (those above 600 units) Women after the menopause from ages 41 to 60 possess high values twice as frequently as do subjects aged 20 to 40 The relevance of ovarian function in this phenomenon may be indicated by the presence of higher values in women who have completed the menopause and in women who have undergone oophorectomy Living Trichomonas vaginalis organisms themselves do not possess the enzyme beta-glucuronidase From the study, it is clear that factors in addition to pregnancy, such as T vaginalis infection and cancer, are implicated in the evaluation of high beta-glucuronidase activity in the vaginal fluid

The uniform incidence of elevated glucuronidase activity in cervical cancer tissue is a striking phenomenon, and its significance will be evaluated separately from the vaginal fluid study

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11 Seligman A M Nachlas M M , Manheimer L H Friedman O M and Wolf G Development of New Methods for the Histochemical Demonstration of Hydrolytic Intracellular Enzymes in a Program of Cancer Research Ann Surg **130** 333, *1949*

ALCOHOL IN THE TREATMENT OF ANGINA PECTORIS

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Alcohol has been regarded as a valuable drug in the treatment of angina pectoris since the earliest description of the disease by Heberden[1] in 1786 It is rated by most contemporary authorities as one of the few effective coronary vasodilators, second only to the nitrites[2] Indeed, the effect of 1 or 2 ounces (30 to 60 cc) of whisky or brandy in terminating an anginal attack is said to be comparable in many instances to the results obtained with glyceryl trinitrate Nevertheless it is in the prevention rather than in the treatment of these episodes that alcohol has been deemed of particular clinical value[2b] Physicians frequently prescribe it in angina pectoris as a routine prophylactic measure and especially before contemplated effort or excitement

In spite of such wide therapeutic endorsement surprisingly little is known regarding the actual effect of alcohol on disturbances of coronary blood flow in human disease The observed influence of the drug on anginal pain has been almost universally accepted as proof of its coronary vasodilating action Experimental evidence, however does not support this contention Various investigators[3] have failed to observe a significant increase in coronary blood flow in animals even with high concentrations of the drug It seems possible therefore, that another mechanism may be responsible for the symptomatic relief frequently afforded by this agent

Alcohol has long been known to be a depressant of the central nervous system capable of decreasing anxiety and promoting a sense of well-being[4] Its beneficial influence in angina pectoris may therefore arise from its sedative action, through which it increases the threshold for pain sensation without exerting any significant effect on underlying myocardial anoxia If this hypothesis is established the indications for the use of alcohol in coronary disease will require reevaluation The employment of a drug which prevents the warning stimulus of pain without influencing the actual status of the coronary circulation obviously presents a theoretic hazard in prophylactic therapy Although such a drug may have some value in the treatment of the anginal attack it cannot accurately be classed with the nitrites, which have been shown to reverse the electrocardiographic pattern frequently observed during transient episodes of coronary insufficiency

Other authors have attempted to evaluate the effect of alcohol in the treatment of angina pectoris, utilizing pain alone as an index of myocardial ischemia Evans and Hoyle[5] studied records covering two week periods during which patients noted the number of attacks, the duration of pain and the effect of medication Stearns, Riseman and Gray,[6] on the other hand, endeavored to measure the influence of alcohol on exercise tolerance by having their patients continuously ascend and descend a two step staircase in a cold room until angina developed Such technics would be acceptable for assaying the vasodilator potency of drugs if pain represented a definite end point and reflected a fairly constant degree of coronary insufficiency in the individual patient Obviously, however, this is not the case Pain is of infinite variability and to date has not been accurately quantitated in man either subjectively or objectively Furthermore even if such precise measurement were possible, pain could not reliably reflect the status of the coronary circulation In our laboratory, for example, patients showing quantitatively constant electrocardiographic alterations with each performance of a standard exercise test under carefully controlled conditions have experienced no distress on some occasions and appreciable pain on others Conversely as Dock[7] has pointed out "a minute ischemic area in the myocardium may cause as severe discomfort as ischemia of a whole ventricle" Consequently if the action of alcohol is to be critically analyzed a more accurate index of coronary insufficiency is required than that afforded by the sensation of pain alone

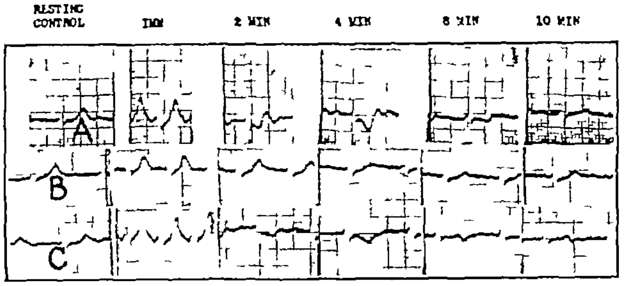

Fig 1 (case 1) —Electrocardiograms (lead 4) showing modifying influence on resting control of standard exercise (Master two-step test[8]) after a certain time interval (minutes between medication and beginning of test) In all figures response *A* follows no medication no time interval response *B* follows 1/150 grain (0 4 mg) glyceryl trinitrate orally time interval five minutes In figure 1 response *C* follows 45 cc whisky orally time interval twenty minutes

At the present time electrocardiography offers the most objective means of evaluating changes in coronary circulation It is significant furthermore, that certain patients with coronary disease repeatedly show transient RS-T segment depression and T wave inversion of constant pattern in response to standard exercise[8] In such selected cases it is possible to determine accurately the modifying action of various drugs on the electrocardiographic response to measured exercise Accordingly a technic was devised in which alcohol and glyceryl trinitrate could be compared objectively with regard to their effectiveness in preventing previ-

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As a joint project with the National Heart Institute United States Public Health Service Washington D C

From the Cardiovascular Research Unit Department of Medicine United States Marine Hospital Staten Island N Y consultant in cardiovascular disease (Dr Russek)

[1] Heberden W Some Account of Disorder of Breast M Tr Roy Coll. Physicians **2** 59 1786

[2] (*a*) Goodman I and Gilman A The Pharmacological Basis of Therapeutics New York The Macmillan Company 1941 (*b*) White P D Heart Disease New York The Macmillan Company 1931, p 436 (*c*) Levine, S A Clinical Heart Disease Philadelphia W B Saunders Company 1940 p 116

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[4] (*a*) Jetter W W Chemical and Clinical Diagnosis of Acute Alcoholism New England J Med **221** 1019 1939 (*b*) Miles W R in Emerson H and others The Psychologic Effect of Alcohol in Man New York The Macmillan Company 1932 (*c*) Goodman and Gilman[2a]

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[8] Russek, H I Smith R. H Baum W Neagle, C and Regan F D Influence of Saline Papaverine Nitroglycerine and Ethyl Alcohol on the Electrocardiographic Response to Standard Exercise Circulation **1**:700 1950

ously observed patterns of myocardial ischemia in suitable test cases

Method—As a result of screening a large number of patients with angina pectoris by means of the Master two-step test,[9] 5 cases were found in which the electrocardiographic response remained constant when recorded from day to day Thus in each of these cases a constant pattern of change was repeatedly observed in the tracings taken during the ten minute interval following exercise These transient electrocardiographic changes, moreover, appeared and disappeared with great regularity in the individual case After recording the response characteristic for each patient by obtaining a number of control studies, the identical procedure was carried out five minutes after the administration of 1/150 grain (0 4 mg) of glyceryl trinitrate In similar manner, the test was performed on other occasions, five to thirty minutes after the ingestion of 1 or 2 ounces of whisky Only one test was performed in any twenty-four hour period, and in each instance identical conditions were maintained Each study employing glyceryl trinitrate or whisky was repeated at least once, and additional control records were obtained at frequent intervals throughout the period of observation

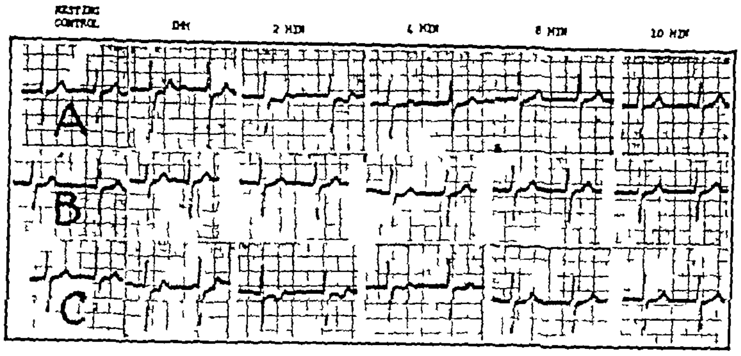

Fig 2 (case 2) —Electrocardiograms (lead CF₄) as in figure 1, except that response *C* follows 30 cc of whisky orally, time interval ten minutes

Results—The control electrocardiograms recorded after exercise in each of the cases studied show transient changes in the RS-T segments and T waves which according to accepted standards, are clearly indicative of myocardial ischemia[10] Thus in each of these cases exercise was followed by depression of the RS-T segment (amounting to considerably more than 0 5 mm) and flattening or inversion of the T wave When glyceryl trinitrate (1/150 grain, sublingually) was administered to each of the patients five minutes before the beginning of the test, these changes either completely failed to appear or were minimal in nature In every instance there was a decided difference between the control records and those obtained after premedication with glyceryl trinitrate (figs 1 to 5, inclusive) In striking contrast, the administration of 1 or 2 ounces of whisky five to thirty minutes before the test exerted little or no influence on the electrocardiographic response to standard exercise Thus it is evident from the tracings that alcohol was without significant effect in preventing the RS-T changes induced by this standard procedure (figs 1 to 5)

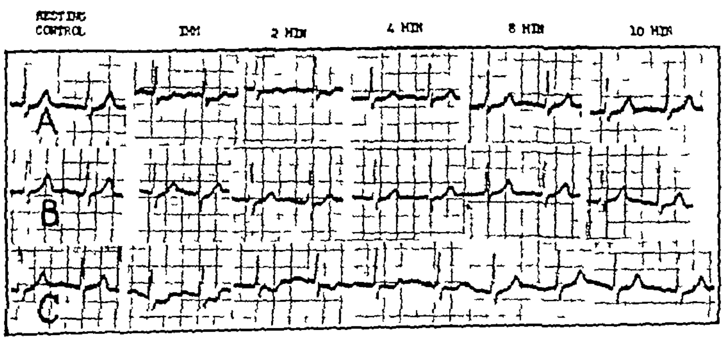

Fig 3 (case 3) —Electrocardiograms (lead CF₄) as in figure 1, except that response *C* follows 60 cc of whisky orally, time interval five minutes

In spite of these pronounced differences, whisky did appear comparable to glyceryl trinitrate in its ability to prevent the onset of anginal pain during the performance of the exercise test

COMMENT

The results of this study clearly indicate that a misconception exists regarding the value of whisky in the treatment of coronary disease Although this agent is capable of preventing an anginal attack or terminating it when present in many patients, the clinical effect of the drug appears to result from an action independent of coronary vasodilatation Thus, in the cases herein reported whisky completely failed to prevent the electrocardiographic patterns of myocardial ischemia induced by standard exercise Since its pharmacologic action on coronary circulation differs decidedly from that of glyceryl trinitrate and actually appears insignificant as revealed by this study, alcohol can no longer be accepted as a coronary vasodilator

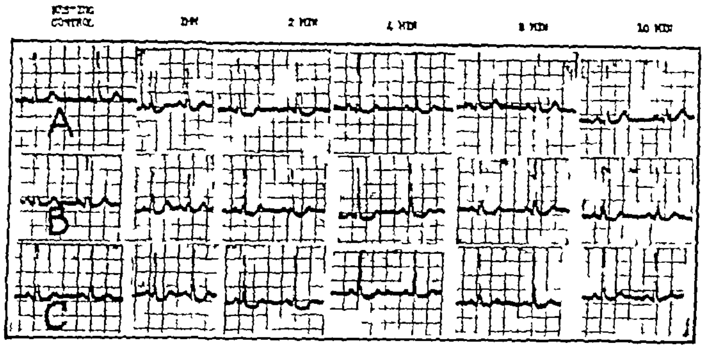

Fig 4 (case 4) —Electrocardiograms (lead I) as in figure 1 except that response *C* follows 60 cc. of whisky orally, time interval ten minutes

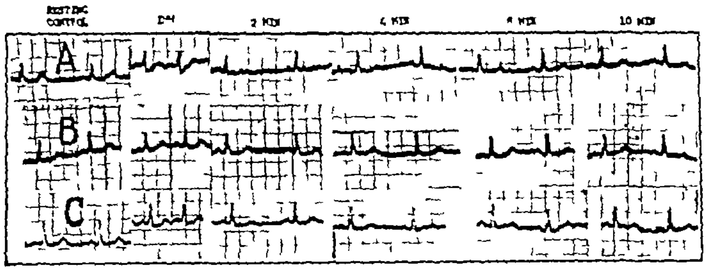

Fig 5 (case 5) —Electrocardiograms (lead I) as in figure 1

Evidence has not yet clearly established whether glyceryl trinitrate acts through specific coronary vasodilatation, lessening of cardiac work or diminution in myocardial oxygen consumption It seems apparent, nevertheless, that the drug influences anginal pain by tending to correct or prevent the underlying myocardial anoxia which provokes the clinical attack, whereas alcohol does not Consequently, the view that a glass of whisky is the equivalent of a glyceryl trinitrate tablet for the patient with coronary disease should be rejected

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[9] The Master test is a procedure in which the patient ascends and descends a two step staircase twenty to thirty times, depending on age, sex and weight Electrocardiograms are recorded immediately after exercise and at two minute intervals thereafter for a period of ten minutes A depression of the RS T segment in excess of 0 5 mm in any of the tracings is regarded as abnormal

[10] Master, A M, and others The Electrocardiogram After Standard Exercise as a Functional Test of the Heart, Am Heart J **24** 277, 1942

From these considerations it must be concluded that the action of alcohol in coronary disease is exclusively that of a rapidly acting sedative. Indeed, precisely the same results were obtained in our patients when ¼ grain (15 mg.) of morphine was administered hypodermically twenty minutes before the performance of the exercise tests. It would seem that whisky, like morphine, exerts its effect by greatly increasing central inhibition or suppression of pain sensation. The depressant action of alcohol, even in small dosage, on the function of the higher centers in man is probably responsible for the observed effects of decreasing anxiety, diminishing attention to pain and increasing sense of well-being.[4b]

As desirable as these effects may appear for the patient suffering from an anginal attack, they might prove very undesirable and even hazardous for the coronary patient contemplating moderately severe exertion. Thus the ingestion of whisky by such a person before he undergoes vigorous physical effort may remove not only the protection afforded by angina but also the restrictions imposed by psychogenic influences. Therefore in those instances in which, as a result of the action of this drug, angina either fails to occur or is relieved, effort may be pressed to greater length so that sudden death or a fatal seizure may ensue.

The observations presented justify the conclusion that alcohol is a poor substitute for glyceryl trinitrate. When the latter is not available, however, the subjective comfort and relief of pain frequently provided by alcohol are helpful in the control of the anginal attack. Its sedative action and ability to create a sense of well-being in some patients suggest that it may also have value in the general management of this disease. Nevertheless, inasmuch as the effects of the drug on the central nervous system are not correlated with objective improvement in coronary circulation, its administration in the prevention of attacks may involve appreciable risk. Thus a double danger exists in one's removing the protection afforded by angina while simultaneously imparting a false sense of physical fitness.

SUMMARY

The relief of pain afforded by alcohol in the treatment of angina pectoris has resulted in its wide acceptance as one of the few effective coronary vasodilator drugs. Nevertheless, neither clinical nor experimental evidence thus far advanced lends support to the concept that alcohol augments coronary blood flow.

The present study was undertaken to determine, by means of an objective electrocardiographic technic, whether or not alcohol exerts a modifying influence on the response to exercise in patients with known coronary disease. The results of this investigation may be summarized as follows:

1. Whisky (1 to 2 ounces, 15 to 30 cc.) administered five to thirty minutes before the performance of a standard exercise test failed to prevent the transient electrocardiographic alterations (RS-T depressions and T wave changes) repeatedly observed in the control records of patients with angina pectoris.

2. In sharp contrast, $\frac{1}{150}$ grain (0.4 mg.) of glyceryl trinitrate administered to the same patients five minutes before the performance of the identical test either completely prevented or significantly modified the previously observed patterns of myocardial ischemia.

3. In spite of these differences, whisky appeared as effective as glyceryl trinitrate in preventing angina induced by the standard exercise test.

From these observations, it is concluded that alcohol is not a coronary vasodilator agent. Its role in coronary disease is solely that of a rapidly acting sedative which increases the threshold for pain while promoting a sense of well-being. Consequently, although its sedative and psychogenic action may have value in the general management of the disease and in the treatment of the anginal attack itself, alcohol must be considered a poor substitute for glyceryl trinitrate. Moreover, its employment prophylactically not only may create a false sense of physical fitness but may remove the protection afforded by angina. It would appear that existent views regarding the value of alcohol in the treatment of angina pectoris should be drastically amended.

Clinical Notes, Suggestions and New Instruments

PHENOLSULFONPHTHALEIN TEST FOR TUBAL PATENCY

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During the war years, when apparatus for the determination of tubal patency were not being manufactured, it became imperative that a tubal patency test be devised which would be accurate, simple, safe and economical. Insufflation apparatus of simple construction were suggested in the literature. The Jarcho apparatus, utilizing air, was tried one time, in spite of the fact that its inherent dangers were known. A small air embolus, which produced shock, cyanosis, thready pulse and gasping respirations, developed, but the patient spontaneously recovered after a few minutes. This made the need for a safe tubal patency test even more pressing. Hysterosalpingography is not without dangers and is costly to the patient and inconvenient for both patient and doctor. Thus from necessity was the phenolsulfonphthalein test born.

Phenolsulfonphthalein was chosen because it was considered to be safe, as evidenced by the many years of clinical usage without any reported toxicity. It was further believed that, if it could be given safely by muscular and intravenous routes without being irritating, it probably could be given intraperitoneally without harm.

Determination of the rapidity of absorption of the dye through the peritoneum was necessary, since it was the basis of the proposed test. It was believed that if the dye readily passed through the fallopian tubes and was quickly absorbed and excreted in the urine a simple and visual test for tubal patency could be established. Six milligrams of phenolsulfonphthalein were injected into the peritoneal cavity of 6 rabbit does and the urine collected every five minutes. In each case the dye was recovered from the urine within twenty-five to thirty minutes. Thus it was established that the dye was readily absorbed through the peritoneum of rabbits.

The next step was to see whether or not the dye was easily absorbed through the vaginal mucosa, endocervix, endometrium or endosalpinx. A volunteer was obtained whose tubes had been ligated by the Pomeroy method two years previously. Twelve milligrams of phenolsulfonphthalein diluted to 20 cc. with isotonic sodium chloride solution were placed in the vagina and kept there for two hours. At the end of this time no dye was recovered in the urine. Then 6 mg. of phenolsulfonphthalein diluted to 10 cc. with isotonic sodium chloride solution were instilled into the uterine cavity. After one hour, no dye was recovered in the urine. Another volunteer was obtained whose tubes were known to be open, and again 6 mg. of phenolsulfonphthalein diluted with isotonic sodium chloride solution to 10 cc. were instilled into the uterine cavity. In thirty minutes, the dye was found in the urine. It was thus felt that phenolsulfonphthalein readily passed through the tubes, entered the peritoneal cavity, was absorbed and passed via the blood to the kidneys, where it was excreted into the urine in an amount sufficient to give a positive reaction to the test. It was further felt that, if the dye was absorbed at all through the mucosa of the vagina, cervix, uterus or tubes, it was done either slowly, in small amounts, or not at all. Any absorption that occurred did not interfere with the test if the test were completed within thirty minutes.

In June 1948 a preliminary report of this test was published.[1] Twenty-four cases were presented, with an accuracy of 100 per cent. Since then, a known total of 210 cases has been gathered: 45 by me, 55 by Israel[2] and 110 by Palan.[3] The results from these 210 tests were considered accurate in each case. Palan concluded that the test was of clinical value and was reliable. Israel wrote: "The results observed warrant the conclusions that the P. S. P. test is simple, economical and safe, as well as a method of indicating the presence of tubal patency." In none of these 210 cases has there been any unfavorable reaction or evidence of toxicity. Thus, from these several preliminary reports, it can be stated with some degree of assurance that the phenolsulfonphthalein test for the determination of tubal patency is a valuable addition to the armamentarium for the study of human infertility.

INSTRUMENTS

The only instruments necessary are the Grave's speculum, sponge forceps, tenaculum, uterine sound, cannula, 10 cc. syringe, any gage needle, medicine glass, one ampul of phenolsulfonphthalein (6 mg.), isotonic sodium chloride solution, glass catheter, a test tube to collect the urine and 10 per cent sodium hydroxide solution.

TECHNIC

The vagina and cervix are prepared in the same manner as for an insufflation test or hysterosalpingography. All instruments should be surgically sterile. A Grave's speculum is inserted into the vagina. The cervix is grasped with a tenaculum and the cervical canal probed with a uterine sound to determine depth and direction. A cannula (similar to that used with the Jarcho or Rubin apparatus) is inserted into the internal os. The rubber obturator on the cannula fits snugly against the external os and prevents regurgitation. Sterile isotonic sodium chloride solution is poured into a medicine glass. The ampul of phenolsulfonphthalein (6 mg.) is drawn into a 10 cc. syringe and diluted to 10 cc. with the isotonic sodium chloride solution. The needle is removed from the syringe, and the syringe is then inserted into the open end of the cannula. The phenolsulfonphthalein solution is injected slowly into the uterine cavity. The stopcock at the distal end of the cannula is turned so that there will be no reflux of the solution.

If the tubes are closed, or if there is tubal spasm, there will be some resistance to the flow of the solution and the patient will complain of abdominal cramps. If the tubes are patent and the injection is slow, there will be little resistance and little cramping. If there is any leakage about the obdurator, it is readily visible and thus will not interfere with the accuracy of the test—a disconcerting fact, at times, with the Rubin method of insufflation.

The cannula is removed at the end of ten minutes. A tampon is placed in the vagina, the speculum and tenaculum are removed, and the bladder is catheterized. The urine is collected in a test tube to which a few drops of 10 per cent sodium hydroxide solution are added. If the urine turns pink or red, the tubes are considered to be patent. If the urine remains clear, the patient is given a glass of water and twenty minutes later is recatheterized. If the urine remains clear after the addition of 10 per cent sodium hydroxide solution, the tubes are considered to be closed; if the urine is discolored pink or red, the tubes are considered to be patent.

RESULTS

Tubal patency was determined in 45 cases by the phenolsulfonphthalein test. In 24 cases the Rubin test and in 6 cases hysterosalpingography was done with the phenolsulfonphthalein test. In 15 cases, the phenolsulfonphthalein test was done alone. In 10 of these 15 cases the test was confirmed by surgical intervention, and in 1 case the patient subsequently became pregnant. Thus, in all but 4 cases, the accuracy of the phenolsulfonphthalein test was confirmed. The presumptive cause of sterility was oligospermia in 3 of the remaining 4 cases; in the fourth the patient had been sterile since the birth of an only child fifteen years previously, and the result of the phenolsulfonphthalein test was negative.

In the 24 cases in which the Rubin test was made, there were two opposite results. In each case, the result of the phenolsulfonphthalein test was positive and that of the Rubin test negative. However, when the tests were repeated, the results in both tests were positive. This indicated, perhaps, that the false negative result of the Rubin test was due to temporary tubal spasm which had no effect on the phenolsulfonphthalein test. In one test, results of both Rubin and phenolsulfonphthalein tests were positive and hysterosalpingography was reported as revealing closed tubes. This patient became pregnant a few months later. Thus, of 45 determinations, it can be said that the phenolsulfonphthalein test was accurate in 100 per cent of cases; of 24 determinations, the Rubin test was correct in 91.7 per cent, and, of 6 determinations, hysterosalpingography was correct in 83.3 per cent.

CONCLUSIONS

The phenolsulfonphthalein test for the determination of tubal patency is accurate, simple and safe. The test is based on the premise that phenolsulfonphthalein is not easily absorbed (if at all) from the normal vaginal mucosa, endocervix, endometrium or endosalpinx but is readily absorbed from the peritoneal cavity. Thus, if the tubes are patent, the phenolsulfonphthalein will pass from the uterus into the tubes and then into the peritoneal cavity. There it is absorbed, carried to the kidneys and excreted, giving rise to a positive result. (The urine turns pink or red when alkalinized.) If the tubes are closed, this will not occur, the urine will remain clear, and the result of the test will be negative.

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CARDIOVASCULAR AND RESPIRATORY STUDIES IN PREGNANCY FOLLOWING PNEUMONECTOMY

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J. ROBERT WILLSON, M.D.
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Relatively few pneumonectomies have been performed in women in the childbearing age, the majority of such operative procedures being carried out for pulmonary cancer, which occurs most often in men over 40.[1] Because pregnancy following pneumonectomy has not previously been reported, we are reporting the case of a patient who was delivered of a full term infant two years after such an operation. The physiologic changes which occurred incident to the pregnancy, the increased oxygen demand, the increased blood volume and the increased work load on the heart were adequately handled by the cardiovascular and respiratory systems despite a reduction in the size of the pulmonary capillary bed by at least 50 per cent and a loss of more than half the lung parenchyma.

REPORT OF CASE

Mrs. M. O., a white primigravida aged 40, had had her right lung removed at the age of 37 because of grade I adenocarcinoma. A year after the pneumonectomy she married, and two years postoperatively, at the age of 39, she became pregnant for the first time. Her last menstrual period began April 29, 1948, and at the first antepartum examination, on July 6, she had no complaints except dyspnea on exertion, which had been present since the pneumonectomy but which had increased somewhat since the onset of the pregnancy. Physical examination at the time showed an apparently healthy woman in no distress. Her blood pressure was 116 systolic and 80 diastolic. Her

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[1] Ochsner, A.; DeBakey, M., and Dixon, J. L.: Primary Cancer of the Lung, J. A. M. A. **135**: 321 (Oct. 11) 1947.

weight was 139 pounds (63 Kg) There was no distention of the neck veins There were dulness and absent breath sounds over the right side of the chest The left side of the chest was clear to percussion and auscultation The mediastinal structures including the heart were shifted to the right The heart was apparently not enlarged, the sounds were good and there were no murmurs Pelvic examination revealed a uterus enlarged to the size of an eight week pregnancy Pelvic measurements were all within normal limits There was no ankle edema Because of the low grade malignancy of the previous pulmonary lesion the adequate compensation for the loss of the lung and the patient's desire for the baby, the pregnancy was allowed to continue

The patient was seen at regular intervals throughout the pregnancy, during which her weight increased from 139 to 151 pounds (63 to 68 5 Kg) Although she complained of increasing dyspnea and attacks of pain in the lower right side of the chest, there occurred no change in blood pressure or pulse rate and no evidence of cardiac decompensation The urine during pregnancy showed no alteration from normal, and the lowest level of hemoglobin was 11 Gm per hundred cubic centimeters She was admitted to the hospital for study of pain in the right upper abdominal quadrant and thoracic discomfort on Jan 10, 1949 but was discharged after three days when nothing abnormal was found

Labor began spontaneously on January 27 and six hours after the onset the patient was delivered of a normal 8 pound (3 629 Gm) female infant by low forceps while she was under tetracaine hydrochloride (pontocaine hydrochloride®) saddle block anesthesia She lost approximately 700 cc of blood from an atonic uterus The postpartum course was afebrile and uneventful

In addition to following the state of the patient by clinical signs and symptoms we examined the patient at each antepartum visit by a series of tests designed to give some objective measurement of respiratory and cardiovascular function The various parts of the ventilatory function (tidal volume, minute volume, vital capacity and maximum breathing capacity) were measured on a Roth Benedict spirometer with the patient in the supine position after she had rested for an hour The maximum breathing capacity was attained by voluntary effort the patient being asked to breathe as deeply and as rapidly as possible for thirty seconds into the spirometer from which the soda lime cannister had been removed Venous pressure measurements were made with the patient in the supine position While the patient was under local procaine anesthesia a 15 gage needle was placed in the antecubital vein and the pressure was measured in centimeters of water the level of the right auricle being taken as a point 10 cm above the skin of the back[2] Several times during the pregnancy a Caughey[3] cardiac overload test consisting of 1,500 cc. of isotonic sodium chloride solution given intravenously in thirty minutes was performed The venous pressure was measured at five minute intervals during the administration of the saline solution (i e, after every 250 cc) and the vital capacity was measured at the beginning and at the end of the tests An electrocardiogram was done early in pregnancy and after delivery

The results of these tests are given in the accompanying table There was essentially no change in the tidal volume, the vital capacity or the maximum breathing capacity during the course of the pregnancy There was, however, a slight increase in the rate of respiration, from 14 to 19 times a minute, which resulted in an increase in the minute volume of respiration of 3.2 liters There were more significant changes in the function of the cardiovascular system The venous pressure, which was normal (6 6 cm of water) at the twelfth week of pregnancy, rose steadily to 16 cm at the thirty-fourth week It began to drop but rose again to 20 8 cm in the fortieth week, at which time the patient complained of abdominal and chest pain A fall in pressure to 11 8 cm occurred immediately before delivery and it was at this same level immediately post partem four hours later it was 7 4 cm, and on discharge from the hospital two weeks later it was again 11 6 cm (5 cm above the reading at the twelfth week of pregnancy) Seven weeks post partum it had risen to 18 6 cm Seven months later it was 14 0 cm

Results of Tests for Objective Measurement of Respiratory and Cardiovascular Function

		Pulmonary Function							Cardiac Function		
						Maximum Breathing Capacity					
Date	Wk	Tidal Volume Cc	Rate	Minute Volume L	Vital Capacity Cc	Depth Cc	× Rate	= M B C L	B P Mm Hg	Venous Pressure Cm of Saline Solution	Increases in V P (Cm Water) with 1 500 Cc Saline Solution I V
Prepneumonectomy		700	12	8 4		1 450	28	40 6	100/60	4 0	6 0
Postpneumonectomy (1 yr)		450	12	5 4	850	700	22	15 4	100/70		
Pregnancy 7/6/48	12	610	15	9 2	1 050	600	32	19.2	100/68	6 6	6 4
8/9/48	17	450	14	6 3	1 160	780	22	17 3	110/80		
9/7/48	21	550	14	7 7	1 050	800	28	22 4	100/60		
10/5/48	25	600	16	9 6	950	500	30	15 0	100/72		
10/20/48	28	550	17	9.[illegible]	1 000	600	28	16.8	110/70	15.5	4 5
11/16/48	30	600	17	10.2	1 000	700	28	19 6	130/70		
12/10/48	34								130/80	16 0	
1/10/49	38								120/80	13 0	
1/13/49	39	500	19	9.5	1 000	650	34	22 1	120/70	9 8	6 0
1/22/49	40	600	17	10.2	1 050	700	32	22.4	120/80	20.8	7 0
1/27/49 Delivery									130/80	11.8	
									118/78	11.2	
									98/60	7 4	
1/28/49		650	13	8 5	1 100	950	22	20.9	112/70	10 2	
1/31/49									120/80	9 6	9 4
2/8/49									100/60	11 6	7 2
4/4/49		650	14	9 1	1 100	900	24	21 6	103/65	18 6	5 0*
10/24/49		350	12	4.2	1 040	500	30	15 0	112/70	14 0	

* Patient had angina after intravenous injection of only 1,250 cc of isotonic sodium chloride solution

When the overload test was done early in pregnancy the result was abnormal The rise in venous pressure was 6 4 cm of water (normal, not more than 4 to 5 cm) Although the initial venous pressure rose as pregnancy advanced there was no other alteration of the response to overloading the circulation In the fortieth week, the day after the patient received 1,500 cc of isotonic sodium chloride solution intravenously, ankle edema developed for the first and only time During the last test, seven weeks post partum, the patient experienced a cramping substernal pain and a sensation of dyspnea after 1 250 cc. of isotonic sodium chloride solution had been given intravenously The electrocardiogram was unchanged from the previous record

COMMENT

The ventilatory function prior to pneumonectomy was far from normal The depth of respiration attained during maximum effort was 1,450 cc (normal about 2 500 cc), and the total maximum breathing capacity was 40.6 liters (normal 85 or more liters). At this time there was no subjective complaint of dyspnea. Removal of the lung was followed by further reduction in ventilatory function, and, although compensatory adjustments permitted normal breathing at rest, disability was evident on effort, dyspnea resulting from moderate exertion. The depth of respiration attained on maximum effort was reduced 50 per cent to 600 to 800 cc. by pneumonectomy, but this was compensated for by an increase in respiratory rate. The vital capacity was 850 cc. As a result of these changes the depth of respiration which could be attained on *maximum* effort was only slightly greater than the resting tidal volume. Thus, not only was there an extremely small respiratory reserve, but any increase in the volume of air moved could be accomplished only by an increase in respiratory rate, since little increase in the depth of respiration was possible.

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[3] Caughey J L Effect of Rapid Infusion on Venous Presure A Test of Cardiac Reserve Proc Soc Exper Biol & Med 32 973 1935

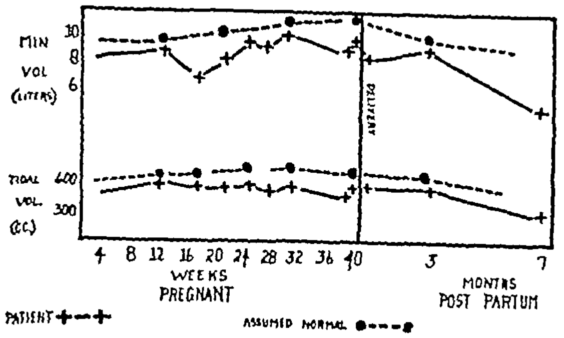

Fig. 1.—Changes in the patient's resting ventilation (tidal volume and minute volume) during and after pregnancy compared with the assumed normal changes.

In pregnant women with normal cardiovascular respiratory systems there is an increase in the minute volume of respiration due to an increase in the tidal volume.[4] In this patient there was no real increase in tidal volume and only a slight increase in the rate of respiration (fig. 1). No further decrease in vital capacity (fig. 2), depth of maximum breathing capacity (fig. 3) or respiratory reserve was observed. Although Thomson and Cohen[5] suggested that the vital capacity increases slightly as pregnancy advances and the subcostal angle widens, no such tendency was present in this case. Increased oxygen demand apparently was met by an increased efficiency in the absorption of oxygen, there being no real increase in the volume of air ventilated. As the pregnancy advanced the patient did notice increasing dyspnea on exertion, but this never became severe enough to be disabling.

A serious potentiality in this patient's case during the pregnancy lay in the fact that she had extremely low respiratory reserves. Had she experienced any further loss of lung volume from bronchopneumonia, atelectasis or infarction, she might have encountered serious difficulty, a true respiratory insufficiency. Fortunately, such complications did not occur.

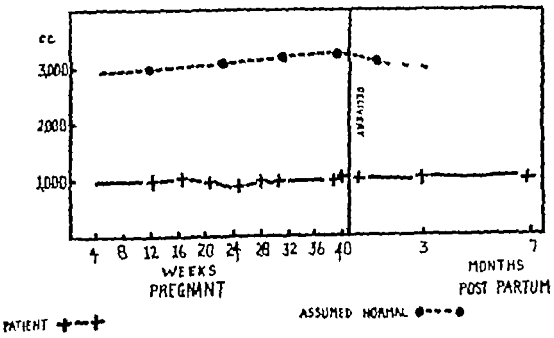

Fig. 2.—Changes in the patient's vital capacity during and after pregnancy compared with the assumed normal changes.

Although there were no clinical signs or symptoms of heart failure, certain abnormal objective changes occurred with respect to the cardiovascular system. The rise in peripheral venous pressure was not a normal response, for Thomson, Reid and Cohen[6] stated that the venous pressure tends to drop during pregnancy and to rise post partum. The pressure rose until the thirty-fourth week of pregnancy, then slowly fell (fig. 4). This rise and fall corresponds roughly to the reported increase and decrease in plasma volume which occurs during pregnancy.[7] During the fortieth week, the venous pressure rose to its highest point. The patient had no signs of heart failure. Whether or not the fact, as Caton[7] and associates have recently shown, that the extravascular fluid continues to increase through the last ten days of pregnancy had any bearing on this rise cannot be said. However, this increased extravascular fluid was probably the cause of the leg and ankle edema which followed the administration of 1,500 cc. of isotonic sodium chloride solution during the overload test in the fortieth week, the patient having had no edema at any other time during her pregnancy.

A more serious cardiovascular complication was an attack of angina during the overload test seven weeks post partum. So far the significance of this has not been determined. The electrocardiogram at this time showed no change from the antepartum record.

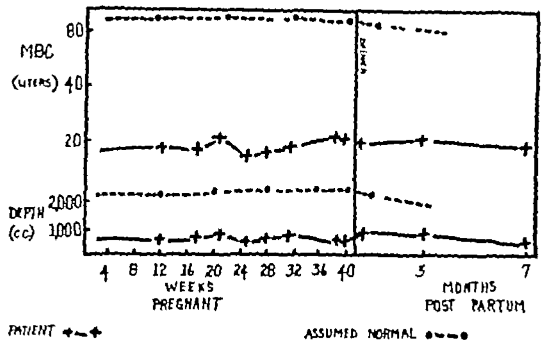

Fig. 3.—Changes in the patient's maximum breathing capacity (MBC) on voluntary effort compared with the assumed normal changes.

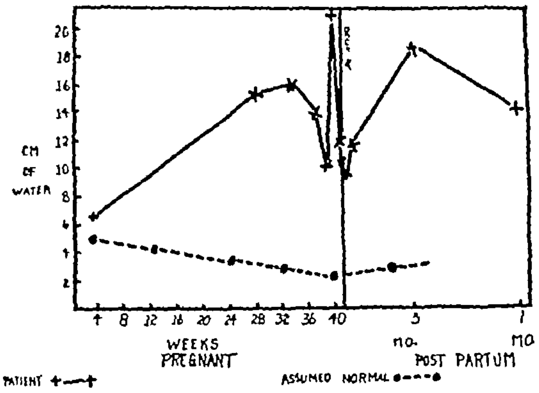

Fig. 4.—Changes in the patient's venous pressure during and after pregnancy compared with the assumed normal changes.

SUMMARY

1. A patient after a pneumonectomy with an extremely low respiratory reserve was able to complete a normal pregnancy and deliver uneventfully.

2. The load of pregnancy (i. e., increased oxygen requirements, increased blood volume and increased work of the heart) did not change the ventilatory portion of the respiratory function to any significant extent. Further decrease in functional lung tissue at any time during the pregnancy might have jeopardized both the life of the mother and that of the baby.

3. Changes occurred in the cardiovascular system, but their full significance is still unknown; the venous pressure rose and remained elevated post partum, and the patient had angina post partum on the performance of the overload test.

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UNUSUAL REACTION TO PENICILLIN

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Severe transient allergic reactions to penicillin have been reported,[1] but to our knowledge no case of proved myocarditis and hepatitis associated with giant urticaria has ever been published. Watson[1b] reported a case in which there was severe indigestion, pain behind the sternum and swelling of the hands, feet and face, but he was unable to obtain any objective evidence of myocardial or hepatic derangement. The literature abounds with reports of structural and functional cardiac, renal and hepatic damage due to the so called collagen diseases[2] These changes are more or less permanent and are usually fatal The allergic background for this condition has been stressed by Harris[2c] and Rich[2d] On the other hand, Klemperer[3] hesitates to accept the doctrine of allergic origin for all the collagen diseases, especially lupus erythematosus He points out that any number of chemical and physical agents may produce similar lesions

Harkavy[4] prefers the term vascular allergy He cites 3 cases of Shookoff and Lieberman as well as 1 of his own, with electrocardiographic evidence, to show the transient effect of acetylsalicylic acid and tobacco on the myocardium Much more common than myocardial changes are arrhythmias due to allergens Harkavy believes that these cardiovascular manifestations may be reversible in the early stages but later become irreversible because of chronic inflammatory and degenerative changes which may follow repeated single or multiple antigenic stimulation He applies the term *formes frustes* of diffuse allergic vascular disease to cases in which recovery occurs

REPORT OF CASE

The patient, a 53 year old white man, was given four intramuscular injections of procaine penicillin suspended in sesame oil daily He was being treated for an external otitis Ten days after the first injection he noted a rash of raised pink welts on his head, hands and feet and angioneurotic edema of the scrotum and penis There had been no previous history of allergy or cardiovascular or hepatic disease. He had been treated with penicillin two years previously with no ill effects The day prior to his first examination by us he had gone to a chiropodist because of extremely painful heels He had been given a local injection of procaine hydrochloride without relief He was first seen by us on the fourth day of his illness The temperature was 98 8 F and the blood pressure 112 systolic and 70 diastolic There was a disseminated urticaria over the entire body and generalized lymphadenopathy The heart and lungs were entirely normal The abdomen was soft, and the liver and spleen were not palpable He was given 2 mg of epinephrine in peanut oil intramuscularly and 100 mg of tripelennamine hydrochloride every four hours On the following day the urticaria was worse The blood pressure was 96 systolic and 70 diastolic and the temperature 98 F Intravenous administration of calcium and intramuscular use of epinephrine were of no avail, and the patient was hospitalized He was acutely ill, with edema of the mouth, tongue and pharynx. Dr H T Behrmann described the skin lesions as giant urticaria Diphenhydramine hydrochloride, 3 cc every four hours intramuscularly, chloroprophenpyridamine maleate, 4 mg every four hours, nicotinic acid, 50 to 100 mg daily and starch baths were given without success Temperatures ranged as high as 103 4 F

Laboratory examination of the blood showed hemoglobin, 81 per cent (12 5 Gm per hundred cubic centimeters), red blood cells, 4,260,000, white blood cells, 11,500, with 70 per cent polymorphonuclear forms, 17 per cent band cells, 8 per cent lymphocytes, 1 per cent eosinophils and 4 per cent monocytes The white blood cell count rose to a high of 21,750, of which 96 per cent were polymorphonuclear cells and 75 per cent were young forms Four days later the count was 9,600 white blood cells The highest eosinophil count was 2 per cent. The urine was consistently normal Blood culture was sterile Additional tests showed blood sugar, 103 mg, and urea nitrogen, 12.3 mg per hundred cubic centimeters, cephalin flocculation reaction, 4 plus, thymol turbidity, 6 3 units, alkaline phosphatase, 13.2 Bodansky units, total protein, 4 63 Gm (albumin, 2 28 Gm and globulin, 2 35 Gm), cholesterol, 249 mg, and cholesterol esters, 103 mg per hundred cubic centimeters Reaction to a precipitin test for Trichinella was positive, 1 1,280

Repetition of tests of the liver function in three days showed a gradual improvement cephalin flocculation reaction, 3 plus, thymol turbidity, 4 6 units, alkaline phosphatase, 8 1 Bodansky units, and cholesterol, 218 mg, and cholesterol esters, 127 mg per hundred cubic centimeters

Two weeks later the following results were obtained cephalin flocculation reaction, negative, thymol turbidity, 3 units, alkaline phosphatase, 2 Bodansky units, cholesterol, 305 mg, and cholesterol esters, 249 mg per hundred cubic centimeters, and total protein, 6 8 Gm (albumin, 4 5 Gm and globulin, 2 3 Gm) per hundred cubic centimeters A roentgenogram of the chest showed some calcified nodes but was otherwise normal

The initial electrocardiogram was reported as showing myocardial involvement The QRS group in leads 1, 2 and 3 was slurred, the T wave was low in lead 1 and inverted in leads 2 and 3, and the CF_1 lead had an upright T wave One week later the T waves were upright in leads 2 and 3 and the T wave in lead CF_1 was diphasic

The course of the disease was stormy The edema of the tongue and pharynx was most alarming There was never any jaundice. Itching was so intense that sleep was impossible until procaine hydrochloride was administered intravenously Relief was dramatic The hives disappeared. He was given 1 liter of 0 1 per cent procaine hydrochloride in 5 per cent dextrose solution and 500 cc the next day The duration of the dermatitis was thirteen days

COMMENT

This case was reported because of the unusual complications of myocarditis and hepatitis De la Vega and Mallen[5] could find no evidence of abnormal liver function or blood proteins in allergic persons They concluded that liver dysfunction plays no role in the production of allergic disease, nor did they have any evidence to show that allergic phenomena may alter liver function Hejtmancik and his associates[2a] reported 2 cases of allergic cardiovascular disease, 1 of which showed periarteritis nodosa of the periportal spaces, although liver function tests were normal McCall and Pennock,[2b] in a review of cases of periarteritis nodosa, cite some cases of hepatic involvement with jaundice reported by Klotz, Kountz and Pass We feel that the hepatic changes, as shown by results of liver function tests, were expressions of hepatocellular edema, which gave a laboratory picture of hepatitis without jaundice. The increased amount of alkaline phosphatase may have been due to periportal inflammation No biopsy was made. The liver was never felt to be enlarged

The myocardial changes are similar to those previously reported These consist of inversion of the T waves and slurring of the QRS complexes Complete reversion to a normal pattern points to a transient alteration in the conduction system of the myocardium The basis for such change is either due to edema of the myocardium or anoxemia due to diminished coronary blood flow In the absence of pain and a previous history of heart disease it seems most likely that the mechanism was one of inflammation of the myocardium

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[2] (*a*) Hejtmancik M R Schofield N D and Herrmann G R Allergic Cardiovascular Disease Am J M Sc. **217** 187 1949 (*b*) McCall M and Pennock W Periarteritis Nodosa Our Present Knowledge Ann Int Med **21** 628 1944 (*c*) Harris A W Lynch G W and O Hare J P Periarteritis Nodosa Arch. Int. Med **63** 1163 (June) 1939 (*d*) Rich, A R. Role of Hypersensitivity in Periarteritis Nodosa as Indicated by Seven Cases Developing During Serum Sickness and Sulfonamide Therapy Bull. Johns Hopkins Hosp **77** 43 1945

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A positive reaction to the *precipitin test for Trichinella* is often found in cases of periarteritis nodosa and other vascular allergies[6] It is not specific for trichinosis This patient had neither history nor typical laboratory findings for the diagnosis of *Trichinella* infection

Another point of interest was the response to intravenously administered procaine hydrochloride Although this medication was not given until the thirteenth day of illness, the relief was so dramatic that it seems most likely that the drug was of therapeutic benefit In a self-limited condition it is difficult to evaluate any therapy, especially when administered so late in the course of the disease Cohen and Kaufman[7] reported relief in 2 of 4 patients who had severe reactions to penicillin, and they felt that intravenously given procaine hydrochloride was worthy of further trial

SUMMARY

1 A case of severe serum-like reaction to penicillin is reported

2 Dermatitis, myocarditis, hepatitis and arthritis were the manifestations of this reaction Electrocardiographic changes and altered hepatic function were observed

3 Intravenously administered procaine hydrochloride seemed to be of therapeutic value

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Council on Physical Medicine and Rehabilitation

The following article prepared at the request of the Advisory Committee on Ophthalmic Devices of the Council on Physical Medicine and Rehabilitation, has been adopted for publication by the Council

Howard A Carter, *Secretary*

BASIC REQUIREMENTS IN SCHOOL LIGHTING

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Increased consideration has been given to school lighting during recent years School committees, superintendents, medical men and architects are in need of a ready source of information concerning the basic requirements of illumination for school buildings It is natural to turn to pamphlets on recommended or standard practice The recommendations in these pamphlets should not be accepted uncritically For instance, the minimum intensity recommended in 1948[1] for schoolrooms is 30 foot candles, although it was only 15 foot-candles in 1938[2] It is pertinent to ask, Why the 100 per cent increase in a ten year period? Are people being educated to accept higher and higher illumination intensities? All will agree, of course, that there should be sufficient light for adequate seeing

In prescribing illumination for any school one should coordinate the intensity and distribution of light with the decoration, i e , paint The purpose of this paper is to examine critically the basic requirements in school lighting Special attention will be given to the experimental backgrounds for the recommendations

COLOR OF LIGHT

Several illuminants, varying in spectral character are available for use[3] Variation in the spectral character usually is accompanied with some changes in color of the light In addition to daylight, the more common artificial illuminants are tungsten filament incandescent light, mercury arc light and fluorescent light In ordinary seeing situations such as found in schools, efficiency of seeing is just as good under one as under any other of the illuminants[4] But Holway and Jameson[5] claim that the quality of light derived from fluorescent lamps no matter what combination of colors is used, is considered both unpleasant and distracting to workers in reading rooms The quality is described as thin, harsh and cold This psychologically undesirable quality of fluorescent light was not present in either daylight or in incandescent tungsten filament illumination A recently devised fluorescent tube (soft white) appears to yield less disagreeable light[6] Under the light of many of the fluorescent tubes, colors in decoration tend to go "flat" and the colors of objects are frequently altered in appearance Thus the warmth and softness in colored paints are lost in comparison with the effect when incandescent light is used

INTENSITY OF ILLUMINATION

Intensity of light adequate for effective and easy seeing is necessary in the school just as in any other situation where visual discrimination is required Nevertheless there is a difference between what is adequate and what is surplus light Careful analysis of the experimental data employed as a basis for recommended intensities reveals in many instances either misinterpretation of data or invalid experimental procedures, for example the experiment of Allphin,[7] which is frequently cited to support the view that greater light intensities influence school achievement School progress was measured in November and in June in two classrooms, one with 4 to 6 foot-candles and the other with 20 foot-candles of light In view of the results it was claimed that the children in the 20 foot-candle room gained 10 per cent more in educational age than those in the 4 to 6 foot-candle room Tinker[8] points out a mistake in method of computing the percentages Actually there was no appreciable difference in percentage gains in the two rooms Another experiment cited in support of arguments for high intensities is the study by Luckiesh and Moss[9] on the relation between illumination intensity and nervous muscular tension resulting from visual effort Measurements were made at 1 10 and 100 foot-candles and the results presented in a logarithmic graph This resulted in nearly a straight line graph By replotting the data on a linear scale, Tinker[10] has shown that most of the decrease in muscular tension must have occurred at the lower intensities There appeared to be only small and insignificant changes from about 25 foot-candles to the higher levels In the new Standard Practice for School Lighting,[1] a similar misinterpretation is made from Lythgoe's curve for visual acuity plotted on a logarithmic scale All curves for gain in visual acuity with increase in illumination intensity flattened out at about 20 foot-candles The gain is greatest up to about 10 foot-candles It must be kept in mind, furthermore, that in measuring visual acuity, one is dealing with threshold values It is highly questionable whether the almost microscopic gains in visual acuity obtained under the higher foot-candle levels justify their application to visual tasks where suprathreshold seeing is involved as in the schoolroom situation

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[6] Reimann A , Price, A H and Herbut P A Trichinosis and Periarteritis Nodosa *Differential Diagnosis, Possible Relationship* J A M A **122** 274 (May 29) 1943

[7] Cohen, H E and Kaufman J The Use of Procaine Hydrochloride Intravenously in the Treatment of Reactions to Penicillin, *J Allergy* **19** 68, 1948

Professor of Psychology, University of Minnesota

[1] American Standard Practice for School Lighting New York, Illuminating Engineering Society, 1948

[2] American Recommended Practice of School Lighting, New York Illuminating Engineering Society and American Institute of Architects 1938

[3] Tinker M A Illumination Standards for Effective and Comfortable Vision J Consult Psychol **3** 11 20 1939

[4] Luckiesh M and Moss F K The Science of Seeing New York D Van Nostrand Company Inc 1937

[5] Holway A H and Jameson D A Good Lighting for People at Work in Reading Rooms and Offices Boston Harvard University Division of Research *1947*

[6] Buck G B II and Froelich H C Color Characteristics of Human Complexions Illum Engin **43** 27 47 1948

[7] Allphin, W The Influence of School Lighting on Scholarship Tr Illum Engin Soc **31** 739 745 1936

[8] Tinker, M A The New 'Standards' for School Lighting, School & Soc **49** *95 96 1939*

[9] Luckiesh, M and Moss F K A Correlation Between Illumination Intensity and Nervous Muscular Tension Resulting from Visual Effort, J Exper Psychol **16** 540 555 1933

[10] Tinker M A Cautions Concerning Illumination Intensities Used for Reading Am J *Optometr* **12** 43 51 1935

Data on visibility measured by the Luckiesh-Moss visibility meter, are also cited to support the recommendations for high intensities[1] Derived values (relative visibility) are cited, i e, reading a newspaper text needs three times the foot-candles used to read 8 point Bodoni type in order that both be equally visible Tinker[11] has questioned the validity of employing derived values for establishing adequate illumination intensities

Preferences for light intensities have been used to support recommendations for high intensities for reading Tinker's analysis[12] of the studies on preferences indicates that visual adaptation plays an important role in determining the preferences made under general illumination In an experimental check, Tinker[12a] found that when readers were adapted to 8 foot-candles of light, the median choice for easy reading was 12 foot-candles But when adapted to 52 foot-candles, the median choice was 52 foot-candles Obviously, the intensity to which the reader is adapted largely determines his choice In general the choices are centered about the intensity to which one is adapted Use of light preferences for determining needed illumination intensity is a dubious practice

A favorite criterion employed by Luckiesh[13] as a basis for prescribing (high) illumination intensities for visual work is frequency of blinking Tinker's analysis[11] reveals a lack of validity for this technic as a criterion for specifying intensities of light needed for visual work In an experimental check with an exact duplication of Luckiesh's technic, Tinker[14] found that rate of involuntary blinking did not reflect changes in ease of seeing and therefore is an invalid criterion

In view of this analysis, it would seem that the high intensities recommended for adequate seeing,[11] such as 50 to 100 foot-candles for difficult reading, rest on a shaky experimental foundation The materials in the pamphlets on recommended or standard practice should, therefore, be evaluated critically by those responsible for specifying school lighting The ideal technic for determining needed illumination intensities probably would be to measure the relation of illumination levels to efficiency in terms of the physiologic cost of the work As yet, no adequate technic for doing this has been devised In the absence of such a technic it is necessary to make use of such measures as visual acuity quickness of seeing and rate of work, which are all basically work output methods

Analysis of the data on visual acuity in such standard works as Lythgoe[15] and Weston,[16] admitting that they are concerned with threshold values, reveals gains in visual acuity can be obtained with intensities up to and beyond 1,000 foot-candles The gains at the higher levels of intensity, however, are insignificant both in terms of practical amounts and statistical significance Examination of the available data indicates that the major gains in visual acuity occur by the time 20 foot-candles is reached For higher intensities, the curve of improvement flattens out rapidly Beyond about 40 foot-candles it is practically horizontal There are two important studies which reveal the statistical insignificance of gains at these higher levels of illumination Simonson and Brozek[17] investigated the perceiving of very small capital letters (3 5 point) under 2, 5, 15, 50, 100 and 300 foot-candles of light In this exacting visual work, there were no statistically significant changes in efficiency between 50 and 100 or 50 and 300 foot-candles In fact, the slight increase from 15 to 50 foot-candles is apparently not significant In the other study, by Kuntz and Sleight,[18] visual acuity was measured in relation to target brightness Target brightness ranged from 3 16 to 1,000 foot-lamberts A foot-lambert would be equivalent to a foot-candle if the reflection surface (i e, page of book) reflected 100 per cent of incident light Acuity of subjects with normal vision and with subnormal vision was measured Employing an adequate standard of significance (at the 1 per cent confidence level), they found that with normal subjects there was no significant gain in acuity beyond 10 foot-lamberts, with the subnormal group, no significant gain beyond 31 6 foot-lamberts Certainly if the slight gains at the higher intensities are not statistically significant, they cannot be significant in practical seeing situations These last two studies furnish ample evidence that the minute gains in visual acuity obtained by adding excessive quantities of light are not significant when evaluated statistically and therefore have no value for practical application The reader should be suspicious of any cited differences (gains) in experimental reports when statistical evaluation is not also given

Critical levels of illumination have been determined for a number of seeing tasks[3] The critical level of illumination is the intensity beyond which there is no further statistically significant increase in efficiency of performance as the foot-candles become greater The following tabulation lists some of these critical illumination levels

Reading legible print (10 pt)	3 to 4 f c
Reading and study of children	4 to 6 f c
Arithmetical computations	Less than 9 6 f c
Setting 6 point type by hand	20 22 f c
Threading a needle	30 f c.
Reading newsprint[19]	7 f c
Recognizing letters in 3 5 point type[17]	Between 15 and 50 f c.

Critical levels, of course, are not adequate levels of illumination Tinker[20] has demonstrated this in a study on the cumulative effect of marginal conditions on rate of perception in reading Furthermore, work output does not always indicate physiologic cost to the organism How much illumination must be added to the critical level to provide a margin of safety is not certain at this time By careful consideration, however, one can make an estimate It would seem to me that the addition of 10 to 15 foot-candles to the critical levels should be adequate in ordinary seeing situations such as reading large book type (10 to 12 point) For the more exacting visual tasks perhaps one should add 20 to 25 foot-candles There is no reason to conclude that more than 50 to 60 foot-candles are required for even the more exacting visual tasks of everyday life

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[11] Tinker M A Illumination Standards Am J Pub Health **36** 963 973 1946

[12] Tinker M A Effect of Visual Adaptation upon Intensity of Illumination Preferred for Reading with Direct Lighting J Appl Psychol **29**: 471 476 1945

[12a] Tinker M A. Effect of Visual Adaptation upon Intensity of Light Preferred for Reading Am J Psychol **54** 559 563 1941

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[14] Tinker M A Involuntary Blink Rate and Illumination Intensity in Visual Work J Exper Psychol **39** 558 1949

[15] Lythgoe R J and Corkhill D E The Measurement of Visual Acuity Medical Research Council Special Report Series no 173 London His Majesty s Stationery Office 1932

[16] Weston H C The Relation Between Illumination and Industrial Efficiency I The Effect of Size of Work Medical Research Council Report London His Majesty s Stationery Office 1935 The Relation Between Illumination and Visual Efficiency—The Effect of Brightness Contrast, Medical Research Council Industrial Health Research Board report no 87 London His Majesty s Stationery Office 1945

[17] Simonson E. and Brozek J Effects of Illumination Level on Visual Performance and Fatigue J Optic Soc America **38** 384 397 1948

[18] Kuntz, J E and Sleight R B Effect of Target Brightness on Normal and Subnormal Visual Acuity J Appl Psychol. **33** 83 91 1949

[19] Tinker M A. Illumination Intensities for Reading Newspaper Type J Educ Psychol **34** 247 250 1943

[20] Tinker M A Cumulative Effect of Marginal Conditions upon Rate of Perception in Reading J Appl. Psychol **32** 537 1948

In regular classrooms, offices, study rooms, libraries and the like, an intensity anywhere between 20 and 30 foot-candles should be adequate Where more exacting visual work is to be done, as in mechanical drawing and sewing, around 35 to 40 foot-candles will be found satisfactory Darley and Ickis,[21] for instance, failed to demonstrate any statistically significant advantages from increasing the light intensity above 30 to 40 foot-candles in drafting rooms, and Holway and Jameson,[5] after extensive experiments, concluded that 20 foot-candles of light are needed on the work surface in offices and reading rooms After an extensive survey of the literature Carmichael and Dearborn [22] chose 16 foot-candles as adequate for reading in their experiments In other parts of the school building less intensity is needed Thus, about 15 to 20 foot-candles in gymnasiums and around 10 foot-candles in auditoriums and cafeterias will be satisfactory Not less than 5 foot-candles should be used in halls and stairways

DISTRIBUTION OF ILLUMINATION

A fundamental aspect of illumination, which is frequently inadequate in practice, is distribution of light and the brightness ratios of areas in the field of vision Whenever light enters the eyes from any visible light source so that the effectiveness of vision is impaired or discomfort and annoyance is felt, or both things occur, glare is present Brightness ratios refer to the brightness contrast that arises from variation in the brightness of adjoining areas within the field of vision

Everyone is familiar with the disagreeable effects of a bright side light or the reflection of light from a highly polished piece of metal, shining into the eyes while reading, while doing other visual work, or even when no exacting visual discrimination is involved In addition to the discomfort felt, a glare source affects visibility of objects such as printed materials The closer the glare source to the line of vision, the greater is the adverse effect on vision [4], and the greater the number of glare sources in the field of vision, the greater the loss of visual efficiency The use of adequate light fixtures properly arranged can eliminate most glare In general, illumination should be as uniformly distributed as possible All the light fixtures in the field of vision should have a surface brightness of not over 2 candles per square inch, 1 candle per square inch is better

The relative brightness of adjoining areas in the visual field influences ease of seeing For convenience the visual field may be divided into the central field, containing the visual task, and its immediate background, such as the pages of a book against which printed words are seen The surrounds of the task extend out 30 degrees from the visual axis, and the peripheral field is beyond the surrounds just mentioned A high brightness contrast between an object such as print and its immediate background is desirable for ease of seeing When the surrounds as just defined are either brighter or darker than the central field, visibility of the objects to be discriminated tends to decrease [4] For best vision the brightness ratios between the central field and the surrounds should not exceed 3 to 1 It is important that these ratios do not exceed 5 to 1, and in no circumstances should they be greater than 10 to 1

The following points will aid in eliminating undesirable distribution of illumination and brightness in the school 1 Avoid bright peripheral light sources, such as low-hanging fixtures that reach well down into the field of vision 2 Avoid as far as possible the use of glazed paper, highly polished desk tops and other working surfaces 3 Avoid any marked changes in brightness from one area to another in the field of vision Thus desk tops should be of medium brightness, the wall around a blackboard should be fairly dark paint, and the strips of wall between windows and window frames should be light-colored paint 4 Keep the surface brightness of light fixtures in the field of vision within the limits suggested herein 5 Maintain, in general, as even a distribution of light as possible over work surfaces Brightness ratios of adjoining areas should come within the limits suggested herein

Intensity of light should be coordinated with control of glare and brightness ratios In certain school situations, as in sewing rooms and shop work, an adequate intensity of light with satisfactory distribution is best obtained through a combination of general illumination of a moderate intensity and local lighting of the intensity needed for the discrimination required at the place of work The ratio between local and general illumination intensity should be kept within the limits suggested for brightness ratios

To achieve a pleasant environment and at the same time maintain good seeing conditions, it is necessary to coordinate lighting with decoration This implies a control of the color and the reflection factor of paint and other surface finishes In adequate lighting, much of the usable illumination comes from light reflected from the ceiling, walls and furnishings The color scheme in the decoration should be pleasing The reflection factors for various areas [1] should approximate the following specifications ceiling and strip of wall near ceiling, 80 to 85, rest of walls, 50 to 60, wall space between windows including window frame, 75 to 85, doors, 30 to 40, desk and table tops, 35 to 50, and floors, 15 to 30 per cent It should be added that there should be an area 24 to 30 inches wide of intermediate brightness surrounding dark blackboards, i e, about 25 per cent reflection factor This could well be a tack board

SUMMARY

Schools should be illuminated so that effective and comfortable vision is possible Furthermore the school environment should be pleasing Intensity of light should be adequate for the various visual tasks One cannot depend on the recommendations of intensities given in bulletins on standard practice Controllable glare should be eliminated and brightness ratios within the visual field kept within satisfactory limits

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21 Darley, W G, and Ickis L S Lighting and Seeing in the Drafting Room, Illum Engin 36 1462 1487, 1941

22 Carmichael, L, and Dearborn W F Reading and Visual Fatigue Boston Houghton Mifflin Company, 1947

Council on Foods and Nutrition

This paper was prepared at the request of the Council and is one of a series appearing in THE JOURNAL. *In the near future the entire series will appear in book form as the Council's Handbook of Nutrition* JAMES R WILSON, M D, *Secretary*

FLUID THERAPY

Relation to Tissue Composition and the Expenditure of Water and Electrolyte

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Probably the proper use of water and electrolyte solutions is responsible for saving more lives of seriously ill patients than is the use of any other group of substances The beneficial effect may be direct, or the patients may be supported until the pathologic process can be corrected by specific measures or surgical intervention Without a considerable knowledge of the physiology of body water and electrolytes, physicians cannot properly treat diseases accompanied by dehydration, edema, acidosis, alkalosis and shock or plan a rational therapy when fluids must be given parenterally or when electrolytes have been lost in sweat, urine and gastrointestinal secretions

Previous concepts of the physiology of body fluids were dominated by two postulates which are now known to be erroneous First, cellular membranes were regarded as practically impervious to sodium and potassium, and second, only alterations in extracellular fluids were thought to be readily accessible to fluid therapy During the past fifteen years, analyses of tissue of experimental animals and determinations of balances of water and electrolytes in patients have demonstrated that intracellular fluids undergo fairly rapid changes in composition which alter profoundly the acid-base equilibrium of extracellular fluids Furthermore, the changes in composition of intracellular fluid, particularly the loss of potassium, and the changes in electrolyte concentrations affect the function of cells This new knowledge has provided a physiologic background which enables the physician to consider the composition of both extracellular and intracellular fluids in planning fluid therapy

This paper will describe the chemical anatomy of both extracellular and intracellular fluids and will direct particular attention to the factors controlling the balance of sodium, potassium and chloride These ions seem especially important since they seem to determine the content of water and the acid-base equilibrium of extracellular and intracellular compartments The clinical significance of changes in the composition of body fluids will be pointed out The final section will show how the new knowledge may be used to plan fluid therapy

I CONTROL OF VASCULAR AND EXTRACELLULAR COMPARTMENTS

The red cells and the plasma of the vascular compartment are about one fourth of the total extracellular constituents The blood plasma may be considered the prototype of all extracellular fluids and, although the red cells must be considered intracellular, their function is intimately connected with that of the plasma The movement of substances within the body and the exchange of water, solids and gases with the outside environment is accomplished by the rapidly moving constituents of the vascular compartment Changes in body fluids are reflected in alterations in the volume and concentrations in the vascular compartment which provoke adjustments in the intake and the output by the kidneys as well as in the circulation and distribution of blood

The movement of substances between the vascular and interstitial fluids is governed by a balanced exchange between the capillaries and interstitial spaces [1] The movement of water and diffusible ions and molecules out of the capillaries is favored by the hydrostatic pressure within the capillaries and the colloid osmotic pressure of the perivascular fluids, the movement of these substances into the vascular compartment is favored by the colloid osmotic pressure of the plasma and the hydrostatic pressure of the perivascular fluids which is exerted by the tissue tension An example of this balanced mechanism is seen in the portal circulation, in which the low capillary pressure is balanced by a high colloid osmotic pressure of the perivascular fluid brought about by increased permeability of the liver capillaries to protein Local changes in extracellular fluids are brought about by alterations in the capillary bed Lymph channels provide an alternate route for the return of vascular fluid which is entering the interstitial spaces and are concerned particularly in the removal of protein

Normally, the volume of the fluid of the vascular compartment is adjusted to the function of maintaining the exchange of metabolites in vital organs, first by redistributing the circulation according to the need but ultimately by altering the volume of plasma and extracellular fluids [2]

The kidneys play the chief role in the control of the volume and concentrations of body fluids However, the renal regulation is merely the crucial activity in a complex process integrated by the regulation of the cardiovascular system, the neurohypophysis, the humoral and neural control of the blood pressure and capillary bed and the adrenal and other endocrine glands The control of the excretion of sodium and chloride determines the volume of extracellular fluids According to present evidence, about 85 per cent of the glomerular filtrate is reabsorbed without changing the osmotic pressure of the tubular urine of the proximal tubules Thus a large part of the reabsorption of water and sodium chloride is accomplished by processes that are intimately associated The rate of this reabsorption can apparently be augmented in proportion to the load, which means according to the rate of glomerular filtration and plasma concentration In the distal tubules sodium, bicarbonate and water are absorbed by processes which are more or less independent of each other and are under independent regulation According to one theory,[3] the distal tubules tend to reabsorb sodium in quantities which, though known to be variable, tend to be relatively constant under some circumstances If this is true, the excretion of sodium could be regulated in part by changes in the rate of glomerular filtration and the rate of reabsorption by the distal tubules If glomerular filtration supplies an amount of sodium to the distal tubules which exceeds the rate of reabsorption, sodium will be excreted in the

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From the Department of Pediatrics Yale University School of Medicine.

Because of lack of space this article has been abbreviated in THE JOURNAL by the omission of the *footnotes* The complete article will appear in the reprints a copy of which will be sent by the authors on request.

urine On the other hand, if the rate of glomerular filtration is decreased and the distal tubular reabsorption remains the same, practically all the sodium which is filtered will be returned to the body At a given extracellular volume increase in the concentration of sodium in plasma augments the rate of glomerular filtration and tends to increase urinary excretion of sodium The rate of water reabsorption in the distal tubules is under the control of the antidiuretic hormone of the hypophysis [4] Increase in electrolyte concentration in extracellular fluids and diminution of body water leads to decrease in urinary volume through the activity of the antidiuretic hormone Thus the theory is attractive because it provides a mechanism which can explain the regulation of both the volume and concentration of extracellular fluids The weakness of the theory lies in the fact that the variations in the apparent rate of distal reabsorption of sodium are so great that experimental measurement of a constant rate cannot be substantiated because of inaccuracies in the methods and alterations produced by the observations themselves It is known that the salt-retaining hormone of the adrenal cortex increases the rate of reabsorption of sodium, presumably in the distal tubules [5] High venous pressure increases the rate of reabsorption of sodium in the absence of change in the rate of glomerular filtration [6] Although cardiac failure is regularly accompanied by retention of sodium, decrease in the rate of glomerular filtration does not always occur In any case it is probable that diminution of the "functionally effective" volume of the vascular compartment provides the stimulus which provokes the renal response leading to retention of sodium and water such as follows the assumption of the erect posture, exercise, hemorrhage shock, hypoproteinemic states and cardiac failure [7] The mechanism by which this response is achieved is the subject of heated debate and arduous research The following factors, individually or in any combination, may be involved reduction in renal blood flow reduction in the rate of glomerular filtration increase in venous pressure, increase in the action of the hormone of the adrenal cortex on the kidneys and circulation and changes in blood pressure

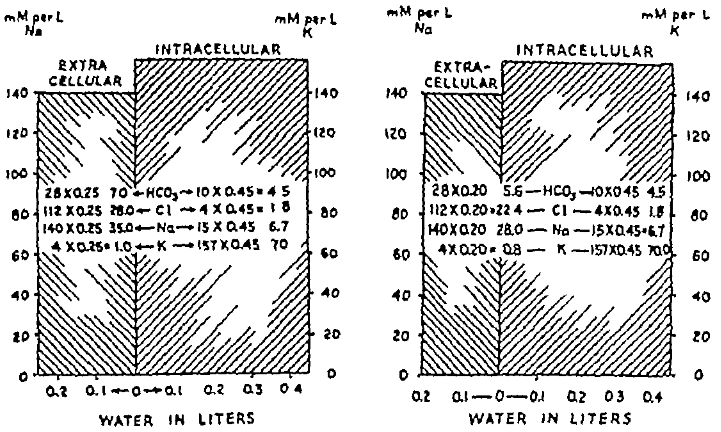

mM per L Na
mM per L K
INTRACELLULAR
EXTRA CELLULAR
140
120
100
80
60
40
20
0
28 X 0.25 7.0 ← HCO₃ → 10 X 0.45 = 4 5
112 X 0.25 28.0 ← Cl → 4 X 0.45 = 1 8
140 X 0.25 35.0 ← Na → 15 X 0.45 6.7
4 X 0.25 = 1.0 ← K → 157 X 0.45 70
0.2 0.1 ← 0 → 0.1 0.2 0.3 0 4
WATER IN LITERS
mM per L Na
mM per L K
INTRACELLULAR
EXTRA-CELLULAR
28 X 0.20 5.6 — HCO₃ — 10 X 0 45 4.5
112 X 0.20 = 22 4 — Cl — 4 X 0.45 1.8
140 X 0.20 28.0 — Na — 15 X 0.45 = 6.7
4 X 0.20 = 0.8 — K — 157 X 0.45 70.0
0.2 0.1 — 0 — 0.1 0.2 0 3 0.4
WATER IN LITERS

Fig 1—Diagrammatic representation of body water and electrolyte in 1 Kg of tissue of a normal baby (left) and of a normal adult (right)

The regulation of body potassium through renal function is just beginning to receive the attention that it deserves The kidneys can excrete more potassium than can be accounted for by the glomerular filtrate, and, though some potassium is always present in the urine, the concentration may be less than that of the plasma It is not clear whether the salt-retaining hormone of the adrenal cortex increases the excretion of potassium by a direct effect on the renal tubules or whether potassium excretion is augmented indirectly when sodium excretion is decreased High serum potassium concentrations increase urinary potassium, a rise in serum bicarbonate increases the urinary potassium Many types of diuresis lead to losses of this ion

The kidneys have the ability to control the acid-base equilibrium of the blood by regulating the acidity of the urine This function demands adequate circulation and sufficient water and electrolyte According to one theory,[8] an acid urine is produced by exchange of hydrogen ions for other cations The same observations can be equally well explained by the effect of removal of carbonate and bicarbonate on the p_H of the remaining constituents of the glomerular filtrate [9] The kidneys form ammonium, which may be substituted for other cations, and thereby save sodium and potassium which would otherwise be necessary for the excretion of large amounts of anions This mechanism takes twelve or more hours to come into full activity The failure to reabsorb bicarbonate from the glomerular filtrate explains the excretion of an alkaline urine It is noteworthy that formation of an alkaline urine fails to occur when there is a considerable deficit of electrolyte The excretion of bicarbonate leads to loss of potassium in the urine, at least until there are considerable deficits of potassium in the body It is also clear that deficits of potassium lead to losses of chloride until the deficits of both potassium and chloride are considerable All the final regulations of the kidneys are inadequate when circulation is impaired or renal disease develops

II RELATION OF EXTRACELLULAR TO INTRACELLULAR WATER AND ELECTROLYTE

In order to enable the physician to visualize the quantitative relationships between extracellular and intracellular electrolyte, a schematic representation of the composition of the body has been presented [10] The extracellular fluids are considered to have the composition of an ultrafiltrate of plasma The intracellular concentrations are represented per kilogram of the intracellular water of rat and cat muscle Data are available which indicate that the intracellular composition of muscle is approximately the same in young and mature cats and that human muscle has about the same composition as that of other mammals Some of the changes in intracellular composition accompanying variations in extracellular composition are known not to be the same in other tissues, although similar changes are probably taking place Since the intracellular fluid of muscle is about 70 per cent of the total intracellular fluid and has about the same composition as other intracellular fluids, the errors are not significant in depicting the relationship between extracellular and intracellular fluids for the body as a whole

Figure 1 illustrates the relationships of extracellular and intracellular fluids of 1 Kg of tissue in babies and adults The extracellular concentration of sodium is represented on the ordinate for extracellular fluids, while the intracellular concentration of potassium is represented by the ordinate for intracellular fluids The abscissas indicate the volumes of water in each instance The amounts of sodium and potassium in the two phases are indicated by the respective areas The amounts of the various electrolytes contained in each compartment are indicated by the concentrations multiplied by the volumes

Total water is slightly greater per kilogram in infants than in adults For the first months of life, extracellular water of infants is about 30 per cent of the body weight Although the intracellular water of adults is probably slightly less than 45 per cent of the body weight, this figure is suitable for all ages Actually, the total body water varies appreciably in normal persons The chief differences are accounted for by the fat content Since fat is deposited with relatively little water, fat persons contain relatively less water per unit of weight However, the quantitative relationships between the two types of fluid are essentially the same in normal persons except for the variations with age

Since the changes in body water and acid-base equilibrium are explained chiefly by variations in water, sodium, potassium and chloride, the discussions will be limited chiefly to these constituents First, total intracellular sodium is about 7 millimoles per kilogram, approximately equivalent to the extracellular bicarbonate and equal to one fifth to one fourth of total extracellular sodium Normally, intracellular sodium is variable, since sodium can be transferred from intracellular to extracellular fluids and vice versa The charts show the usual high normal value for intracellular sodium Since the transfer is apparently accomplished without change in extracellular chloride, the effect on extracellular fluid is to alter the amount of sodium available to form bicarbonate If total body electrolyte does not change, transfer of extracellular sodium to intracellular fluids decreases the concentration of bicarbonate in extracellular fluids, and transfer of intracellular sodium to extracellular fluids increases the concentration of bicarbonate in extracellular fluids Hence, shift of sodium from extracellular to intracellular fluids and vice versa is an important mechanism for diminishing the variations in extracellular bicarbonate In many clinical situations, this mechanism functions in addition to the usually described buffers of the blood

Second, intracellular potassium in normal animals may be about 10 per cent lower than the values on the charts when there is no great disturbance in acid-base equilibrium or body water The charts show the high normal value, since this is the one usually found in rats and cats Changes in intracellular potassium may occur without detectable changes in intracellular sodium, though there is usually a reciprocal relationship between intracellular sodium and potassium

Third under abnormal conditions as much as one half of the intracellular potassium may be replaced by about two thirds of the equivalent amount of sodium This change in intracellular electrolyte was first discovered in rats subjected to diets low in potassium[11] or receiving repeated injections of desoxycorticosterone acetate[12] Conditions leading to losses of body potassium produce similar changes Evidence of loss of intracellular potassium has been found as a result of maintenance of body fluids by continuous intravenous injection of solutions containing sodium chloride and dextrose,[13] as a result of diarrhea[14] and accompanying certain adrenocortical tumors causing Cushing s syndrome[15] Under certain circumstances alkalosis causes an increase in intracellular sodium and a decrease in intracellular potassium[16] Acidosis is also accompanied by loss of intracellular potassium when there are deficiencies of water and other ions[14] The changes in acid-base equilibrium which accompany the alterations in muscle sodium and potassium depend on the accompanying changes in body water, sodium, potassium and chloride

Fourth, there is a predictable relationship between the acid-base equilibrium and the composition of muscle under certain circumstances[17] Figure 2 shows this relationship between the concentration of bicarbonate in serum and the intracellular sodium and potassium of 157 Gm of fat-free solids Since this amount of fat-free solids is associated with 450 Gm of intracellular water, the chart shows the intracellular composition for the same amount of intracellular water as figure 1 shows for 1 Kg of tissue The relationship was demonstrated for rats subjected to any one of the following conditions (1) loss of chloride, or primary metabolic alkalosis, (2) loss of sodium, or primary metabolic acidosis, and (3) primary deficit of potassium Since water and other ions were abundantly available, the relationship was demonstrated under conditions which permitted the kidneys to adjust body water and electrolyte when there was a deficit of one of the ions, sodium, potassium or chloride The relationship may be regarded as a biologic equilibrium, or steady state, for these conditions The equilibrium must be regarded as biologic since it is not attained for several days, and chemical equilibrium requires but several hours The chart (fig 2) is useful in illustrating the sort of changes which will tend to develop in the body with a deficit of one of these ions when the kidneys are able to maintain a relatively constant composition of the body fluids The chart is based on data from rats, in which the relationship is readily demonstrated Clinical studies indicate that the relationship is manifested in humans In dogs[18] it is difficult to induce alkalosis in response to potassium deficiency, though the same changes in cell composition are readily attained

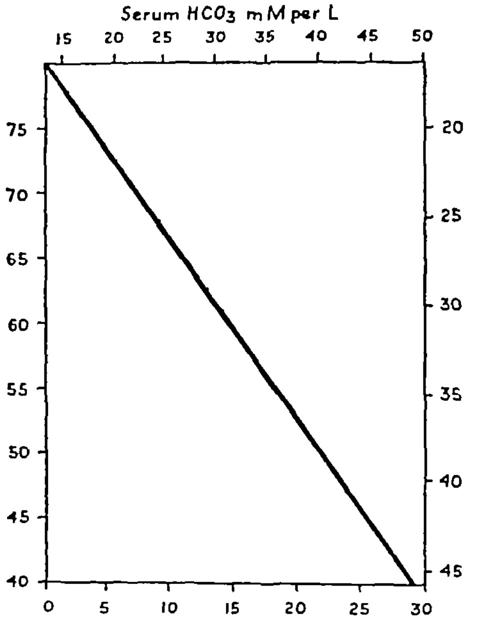


Fig 2—The relationship of the concentration of bicarbonate in serum to the amount of sodium and potassium in the intracellular fluid of 1 Kg of tissue The left ordinate scale represents cell potassium in millimoles per 157 Gm fat free solids. The right ordinate scale represents serum bicarbonate in millimoles per liter The diagonal line represents the relation of intracellular sodium to potassium The bicarbonate values on the ordinate are the best fit for the potassium while the bicarbonate values on the abscissa are the best fit for the intracellular sodium

It will be seen that deficit of chloride and deficit of potassium tend to produce the same changes in both extracellular and intracellular fluids At biologic equilibrium, a deficit of one of these ions tends to lead to deficit of the other Intracellular sodium may reach levels several times the normal value and several times the equivalent of the bicarbonate in extracellular fluids. This relationship is important, first because alkalosis will tend to persist if potassium cannot be replaced and second because deficit of potassium will tend to lead to alkalosis if potassium is not restored. Acidosis not accompanied by loss of potassium, chloride or water leads to loss of intracellular sodium as well as relative deficit of extracellular sodium.[19] Thus, acidosis due solely to deficit of sodium would have an extracellular loss equal to the decrease in bicarbonate concentration multiplied by the volume of extracellular water, that is $(25 - 5) \times 0.25 = 5$ millimoles of sodium per kilogram of body weight, if the serum bicarbonate is 5 millimoles per liter. To this would be added the intracellular sodium (7 millimoles), making a total deficit of 12 millimoles per kilogram in a baby. Except as modified by changes in extracellular volume, the relative deficit of sodium in acidosis is unlikely to be greater than 12 millimoles per kilogram.

Of the three ions under discussion, only potassium seems to alter cellular functions owing to specific ion effects. High concentration of potassium in serum leads to prolonged conduction time, sharp, high T waves and, finally, heart block. The heart block develops at concentrations of 10 millimoles or more of potassium per liter of serum, but other minor evidence of cardiac disturbance may develop at concentrations as low as 7 millimoles per liter. Unless there is renal insufficiency or shock, high serum potassium is unlikely to develop. Low serum potassium leads to low voltages in the electrocardiogram, particularly of the T waves, and to paralysis of the skeletal muscle. These changes are probably always associated with deficit of potassium in the body as a whole. In rats subjected to pronounced potassium deficiency dilated intestines developed and no stools were passed. These rats may die as if they had paralytic ileus. The evidences of intestinal paralysis are relieved by potassium.[20]

Clinically, potassium deficit can only be proved by demonstration of a greater relative loss of potassium than nitrogen during the development of the condition or a greater relative retention of potassium than nitrogen during recovery. If body water and circulation are relatively normal, deficiency of potassium is likely to be accompanied by low concentration of potassium in serum. Under these conditions, certain patients show paralysis of the skeletal muscles and abnormal function of the cardiac muscles. Paralysis of skeletal muscles which is accompanied by low concentration of potassium in serum and relieved by administration of potassium salts was first recognized in familial periodic paralysis.[21] A similar disturbance has been described during the recovery from diabetic coma,[22] cholera[23] and sprue.[24] It probably occurs in infantile diarrhea and in certain cases of nephritis.[25] The effects of potassium deficiency on the heart are probably of great clinical significance. First, there is a functional disturbance leading to electrocardiographic changes, cardiac dilatation and failure. Later, actual necrosis of the myocardium develops.[26] Prevention and treatment of the disturbances in the heart will probably prove to be the chief advantages of the addition of potassium salts to the usual fluid therapy, but prevention of alkalosis and tetany may be important in some instances.

As will be discussed later, potassium deficiency develops because of an output greater than the intake as a result of diets low in potassium[22] or after prolonged maintenance of body fluids by infusions of dextrose and sodium chloride solutions.[13] Potassium deficiency may arise during normal intakes as a result of abnormal excretion in the urine in patients having certain adrenocortical tumors causing Cushing's syndrome[15] or in patients and animals receiving repeated injections of desoxycorticosterone acetate[26] and in certain cases of nephritis[25] and diabetes.[23] Increased losses of potassium in the stools occur in most cases of diarrhea.[14] Abnormal losses of potassium occur when intestinal secretions are lost through fistulas or suction drainage through catheters.[27]

The cells tend to lose potassium and gain sodium when the circulation is impaired in dehydration or shock or when there is tissue anoxia.[28] Possibly this transfer of potassium from the cells to the extracellular fluids and the accompanying urinary excretion is, in part, dependent on the increased activity of the adrenal cortex in response to "stress."[29] The release of potassium from the cells results in elevation of the concentration of this ion in the serum and increased excretion in the urine. As a result of alkalosis, a similar change in cellular composition takes place, accompanied by urinary loss of potassium.[17] It is not known whether the deficiency of potassium in alkalosis is initiated by the release of potassium from the cells or by altered renal function or both.

The disturbances in acid-base equilibrium have previously been described chiefly in terms of the relative contents of sodium and chloride in extracellular fluids. Since sodium shifts between extracellular and intracellular fluids, changes in acid-base equilibrium are now known to involve changes within the cells. The balances of potassium as well as those of sodium and chloride are involved in disturbances of the acid-base equilibrium.

The physicochemical factors controlling the acid-base equilibrium of the blood have been adequately discussed in a recent article by Singer and Hastings[30] as well as in textbooks.[31] The present discussion will, therefore, emphasize the relationship of the changes in the acid-base equilibrium of the blood to alterations in the composition of extracellular fluids and the accompanying changes in the cells.

Changes in the acid-base equilibrium may be defined as deviations from normal in the reaction or p_H of the blood. The p_H is determined by the ratio of the carbon dioxide to the bicarbonate of plasma. The concentration of carbon dioxide depends on the partial carbon dioxide pressure of arterial blood, which normally is equilibrated with the carbon dioxide of residual alveolar air. Hence, the carbon dioxide tension is subject to the regulation of pulmonary ventilation by the respiratory center. The concentration of bicarbonate in serum is dependent on the amount of base (cations) available to form bicarbonate at the particular carbon dioxide tension with the particular amounts of blood electrolyte. The base available to form bicarbonate is regulated by the kidneys. In as much as we are chiefly concerned with the content of water and electrolyte in body fluids, we shall neglect the relatively small changes in the buffering effect of the plasma proteins, red cells and phosphate and emphasize the content of the tissues in sodium, potassium and chloride. These ions are the chief factors determining the "base available to form bicarbonate." The cations available to form bicarbonate are the algebraic sum of total plasma cations minus the plasma anions, excluding bicarbonate, that is $(Na + K + Ca + Mg) - (Cl + HPO_4 + \text{proteins} + \text{sulfate} +$

lactate + keto acids —) For many purposes, the changes in base available to form bicarbonate in the body as a whole are adequately defined by balances of sodium plus potassium minus chloride

Metabolic Acidosis—Metabolic acidosis is produced by primary decrease in the concentration of cations available to form serum bicarbonate It may be produced by relative increase in fixed acids or relative decrease in the concentration of total cations An increase in the anions may arise as a result of ingestion of acidifying salts, through the endogenous production of organic acids owing to exercise, anoxia, hemorrhage, keto acids in starvation ketosis and diabetes or through the retention of phosphates and sulfates in renal insufficiency A relative deficit of base may result from loss of intestinal or biliary secretions and through abnormal renal excretion

The changes in intracellular electrolyte in metabolic acidosis are only beginning to be studied Deficit of sodium alone, such as is illustrated in figure 2, is apparently relatively rare If cation deficit is limited to sodium, the deficiency is measured by the decrease in concentration of bicarbonate in extracellular fluids plus the deficiency of sodium in intracellular fluids The latter deficit is probably never greater than 7 millimoles per kilogram Acidifying salts lead to retention of chloride without a corresponding retention of sodium This type of acidosis is essentially like primary sodium deficit The changes are illustrated by the effect of protein milk in babies,[19] and the probable intracellular composition is illustrated in figure 2

Metabolic acidosis is usually accompanied by deficits of water, sodium, potassium and chloride When there is acidosis and deficit of potassium, intracellular sodium apparently remains normal or may even be somewhat high, but it is not as high as when there is a similar deficit of potassium and no acidosis The difference between the deficits of sodium and potassium and the deficit of chloride is a measure of the deficiency of cations causing acidosis Since the deficit of sodium plus potassium may be greater than total normal extracellular bicarbonate plus normal intracellular sodium, most patients with acidosis cannot rationally be treated with sodium chloride and sodium bicarbonate alone If intracellular potassium remains low the amount of sodium in excess of chloride required to restore extracellular bicarbonate would be more than the normal total excess of sodium over chloride, including intracellular sodium The changes in tissue composition indicate clearly that replacement of potassium as well as sodium and chloride is necessary in most cases of metabolic acidosis

Metabolic Alkalosis—Metabolic alkalosis is produced by primary increase in the sodium available to form bicarbonate in serum Although metabolic alkalosis may be produced by relative excess of sodium, it usually results from relative deficit of chloride The commonest cause is loss of gastric juice by vomiting or suction drainage If sufficient water is available to permit renal adjustment, potassium will tend to be lost from the cells and sodium will partially replace the intracellular deficit of potassium If the plan of therapy offers no opportunity for the body to replace the deficit of potassium, alkalosis may continue despite the administration of both sodium and chloride, because the biologic adjustment to the deficit of potassium leads to the maintenance of alkalosis by the kidneys A similar reaction by the kidneys explains the development of alkalosis as a result of primary deficiency of potassium In either case, recovery from alkalosis requires the replacement of potassium as well as chloride

Respiratory Acidosis—Respiratory acidosis results from primary increase in the carbon dioxide tension Probably the most frequent cause is depression of pulmonary ventilation owing to narcosis, injury to the respiratory center or paralysis of the muscle of respiration However, both acute and chronic respiratory acidosis may be produced by diseases of the lungs which lead to thickening of the alveolar walls, exudates, bronchiectasis and emphysema Since oxygen diffuses less rapidly than carbon dioxide, the arterial blood becomes less saturated with oxygen than normal when carbon dioxide accumulates Presumably, there is no change in body electrolyte in uncompensated respiratory acidosis

Respiratory Alkalosis—Respiratory alkalosis results from primary decrease in the carbon dioxide tension It is produced by excessive pulmonary ventilation, such as occurs during exercise, fever or a disturbance in the respiratory center as a result of infections of the central nervous system, tumors and drugs (salicylates) Overventilation may occur in hysterical patients or as a result of anoxia in cardiac failure or at high altitudes Uncompensated respiratory alkalosis presumably results in no change in body electrolyte

The disturbances in acid-base equilibrium have been discussed as if only the carbon dioxide tension or the cations available to form bicarbonate were altered Actually, the alteration of one of these variables leads to compensatory variation in the others In metabolic acidosis, the respiratory center responds so as to increase the pulmonary ventilation and reduce the carbon dioxide tension The reduction is not sufficient to lead to a normal p_H of the blood In metabolic alkalosis, the respiratory center may reduce pulmonary ventilation, but the reaction is limited because anoxia tends to be produced

On the other hand, the kidneys may alter the cations available to form bicarbonate in both respiratory acidosis and alkalosis In respiratory alkalosis, the serum bicarbonate may be reduced fairly rapidly, but as long as the disturbance in respiration persists the blood p_H remains normal or slightly alkaline However, after the kidneys have produced the reduction in available cations, the respiratory center may recover and respond normally The patient will then have true metabolic acidosis Since recovery from the effects of drugs such as salicylates may be rather rapid, respiratory alkalosis is likely to go through a phase of metabolic acidosis during recovery

In respiratory acidosis, the kidneys may increase the cations available to form bicarbonate to high levels (45 millimoles per liter of serum) The blood p_H remains more acid than normal, and arterial blood shows a diminution of oxygen saturation In respiratory acidosis due to lung disease, there is unlikely to be a sufficiently rapid recovery of lung function to produce a true metabolic alkalosis during recovery

It is not known whether compensated respiratory alkalosis and acidosis produce changes in cell sodium and potassium It is likely that such is the case and that compensated respiratory alkalosis leads to diminution of cell sodium and compensated respiratory acidosis leads to increase in cell sodium and decrease in cell potassium

Disturbances in body water and electrolyte involve changes in the volume and electrolyte concentration which are just as important as the changes in acid-base equilibrium. Dehydration usually involves a decrease in electrolyte as well as water. If the loss of electrolyte is proportionately greater than the loss of water, there is a decrease in the concentration of electrolyte in serum. This type of change may be called hypotonic dehydration. Darrow and Yannet[32] produced loss of extracellular electrolyte without change in body water. The concentration of sodium and chloride decreased in the serum, while the concentration of serum proteins and hemoglobin increased. The animals looked sick, refused food and were weak. The volume of urine decreased, the rate of glomerular filtration decreased, and the nonprotein nitrogen rose. The cardiac output was strikingly decreased.[33] It could be shown that the volume of extracellular water decreased while the volume of intracellular water increased. The clinical picture was essentially the same as it is in the usual dehydration seen in patients. The experiments are important because they emphasize that the central feature of hypotonic dehydration is loss of extracellular electrolyte.

For practical purposes, hypotonic dehydration may be considered to result from loss of proportionately more electrolyte than water, although rare cases may involve little or no deficit of water. With low concentration of serum electrolyte, the cells contain more water than normal. Statistically, the increase in cell water in experiments producing deficit of extracellular electrolyte is only about two-thirds as much as would reduce the electrolyte concentration of the intracellular fluids of muscle as much as the reduction of extracellular concentration.[34] In chronic states of this sort, the relationship may be somewhat different. In any case the disturbances in circulation, renal function and muscular strength are dependent not only on the decrease in extracellular water and plasma but also on decrease in electrolyte concentration.[35] Hypotonic dehydration produces the picture called medical shock and responds to replacement of electrolyte, but the response is somewhat better when blood or plasma as well as electrolyte are given.[36]

Hypertonic dehydration results when the loss of water is proportionately greater than the loss of electrolyte. This leads to increase in the concentration of electrolyte in serum.[37] It can be shown that relatively pure increase in extracellular electrolyte leads to increase in extracellular water and dehydration of the cells.[32] Patients with hypertonic dehydration may show symptoms of shock, but circulatory failure is less prominent than in hypotonic dehydration. Patients and experimental animals with hypertonic serums show evidence of cerebral damage; death is likely to be accompanied by high temperature and respiratory paralysis.

Edema is due to increase in the volume of extracellular water. While the changes in composition of the intracellular fluids are not known, it is usually assumed that cellular structure is well preserved. However, there is no reason to doubt that the cells undergo the same sort of changes in composition when the concentrations and acid-base equilibrium of the serum are altered as has been shown to be the case when there is no increase in extracellular volume. Thus, hypotonic edema should produce increased hydration of the cells, while hypertonic edema should lead to dehydration of the cells. There is evidence that low electrolyte concentration in patients with edema leads to circulatory failure similar to that seen in hypotonic dehydration. Renal function and circulation may be improved by raising the electrolyte concentration by giving sodium chloride and sodium bicarbonate. Although hypertonic edema occurs, increase in the concentration of extracellular electrolyte in patients with edema usually leads to further expansion of extracellular fluids. It is likely that some patients with edema show the changes in cellular composition illustrated in figure 2 when there is change in serum bicarbonate concentration due to relative deficit of one ion.

With these general comments as a background, the changes in tissue composition in certain diseases will be discussed briefly. Infantile diarrhea produces deficits of water, sodium, potassium and chloride. Considerable variation in the absolute and relative losses of these constituents is shown. The serums may be hypotonic or hypertonic. Metabolic acidosis is usually present in severe cases. The balances during recovery in 8 severe cases showed an average deficit per kilogram of body weight of 125 ml. of water, 9.2 millimoles of chloride, 9.5 millimoles of sodium and 10 millimoles of potassium.[38] Since the deficiency of sodium for the body as a whole is equivalent to the deficiency of chloride, the acidosis is largely explained by transfer of extracellular sodium to the cells. This conclusion is evident from the fact that the low concentration of bicarbonate indicates relative deficiency of sodium in extracellular fluids. The deficiency of potassium is equivalent to about one seventh of the total estimated intracellular potassium content or about one-fourth the equivalent of the total extracellular sodium. The abnormally high intracellular sodium is not as great as the deficit of potassium would predict in figure 2. The deficit of potassium is sufficient to explain the development of acidosis with no deficit of sodium in relation to chloride. The acidosis in infantile diarrhea is, therefore, dependent on deficit of potassium occurring in patients with a deficiency of water, sodium and chloride.

Figure 3 illustrates the probable state of body fluids in the dehydration of infantile diarrhea. The deficit of extracellular water and electrolyte is about one fourth of the normal content. If infants with diarrhea are treated with sodium chloride and water alone, the deficit of potassium persists and sodium enters the cells because of the deficit of potassium.[38] If sufficient water is available for renal adjustment, high intracellular sodium and low intracellular potassium will result. This will lead to high concentration of bicarbonate and low concentration of potassium in serum. Alkalosis probably also aggravates the tendency toward development of low serum calcium.[39] All these disturbances will disappear when food, with its high content of potassium, can be absorbed. Indeed the success of treatment with solutions containing sodium chloride and sodium bicarbonate is dependent on sufficiently rapid recovery to permit feeding.

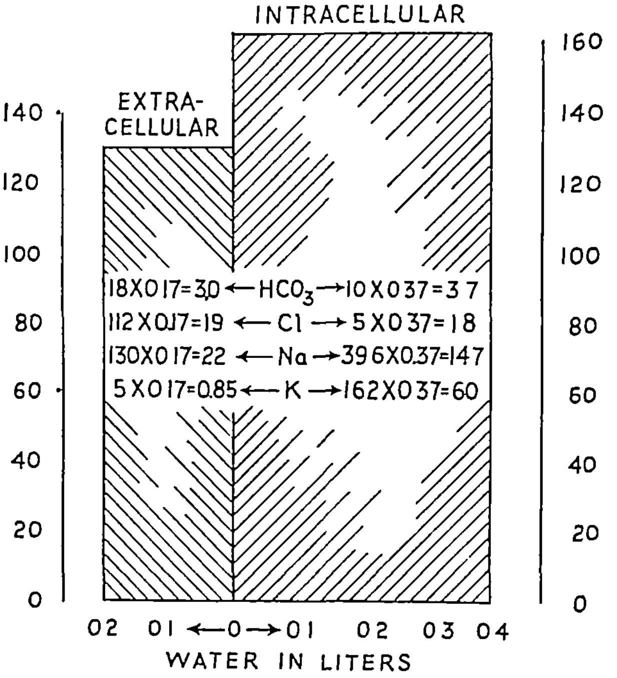
If sodium chloride is given with insufficient water to permit renal adjustment, acidosis may persist or be aggravated. Case 3 of a previous study[38] illustrates this course of events. The patient had severe diarrhea and was treated with the addition of small amounts of sodium chloride to a milk mixture which gave too little water for a patient with diarrhea. On admission, the concentrations of bicarbonate and chloride were, respectively, 7 and 123 millimoles per liter. During recovery practically no change in body sodium or chloride occurred, but 13 millimoles of potassium and 100 Gm. of water per kilogram of body weight were retained Since the diarrhea would have led to deficits of sodium and chloride if salt had not been given, the addition of sodium chloride to the food had prevented deficits of these ions from developing before the admission to the hospital and before the study was started The acidosis had probably been aggravated by transfer of sodium to the cells, since sufficient water was not available to permit renal adjustment The persistent deficit of potassium explains the transfer of sodium to the cells On entry the patient had deficit of water and potassium leading to acidosis and hypertonic dehydration The picture was the result of treatment of diarrhea with sodium chloride and insufficient water

Adults with diarrhea have not been studied with methods which demonstrate the actual deficits of water and electrolyte Nevertheless, it has long been known that adults lose large amounts of water, sodium, potassium and chloride in dysentery and cholera [40] Paralysis of skeletal muscles has been recognized following treatment of cholera,[23] and these paralyses were relieved by injections of potassium chloride Similar observations have been made in sprue [24] There can be little doubt that diarrhea in adults leads to striking deficits of potassium as well as sodium and chloride and that these losses are similar to those in infantile diarrhea

About twenty years ago, Atchley and others [41] showed that diabetic acidosis is associated with losses of potassium as well as sodium and chloride Holler [22] and others [42] recognized paralysis during recovery which was accompanied by low concentration of potassium in serum and was relieved by potassium salts We found that the retentions during recovery in 1 case of severe diabetic acidosis in an 8 year old girl were 100 Gm of water, 8 millimoles of chloride, 12 millimoles of sodium and 6 millimoles of potassium per kilogram of body weight The serum concentrations of phosphorus decrease somewhat more strikingly during recovery from diabetic acidosis than do those of infants recovering from diarrhea The changes in body electrolyte in diabetic acidosis apparently resemble those of infantile diarrhea, and the mechanism of hypokaliemia is dependent chiefly on depletion of intracellular potassium while the patient is becoming acidotic [42a]

The acidosis of renal failure has not been studied adequately from the point of view of changes in both extracellular and intracellular composition Patients with nephritis may show low concentrations of bicarbonate, chloride and sodium, but the intracellular changes accompanying these alterations are not known [43] The usual explanation of the electrolyte changes is failure of the kidneys to form a concentrated urine, which conserves sodium chloride and preserves the acid-base balance The inability to form an acid urine which contains ammonium is the chief explanation of the acidosis The inability to excrete phosphate aggravates this disturbance Certain patients with chronic nephritis have shown weakness and paralysis which is relieved by administration of potassium salts These patients have low concentrations of potassium in the serum [illegible] and presumably in the muscles [44] The logical explanation is that the kidneys are unable to conserve potassium This observation suggests that deficit of potassium may aggravate acidosis through the transfer of extracellular sodium to the cells in patients who have a deficit of sodium chloride and tend to lose potassium However when there is oliguria the concentration of potassium in serum may rise to levels associated with heart block [45] Indeed, potassium intoxication is one of the events leading to death in experimental anuria [46a b] and in some cases of uremia [46c]

All the symptoms of loss of extracellular water and electrolyte may be produced by immobilization of water and electrolytes at the site of an exudate or tissue injury Burns and crushing injuries to muscles are examples of disturbances of this type [40] It has been shown that the fluids which accumulate at the site of injury contain all the essential elements of extracellular fluids and plasma Although the fluids are not lost from the body as a whole, the water and electrolytes are not available to the rest of the tissues Thus, it is not surprising that traumatic shock with immobilization of extracellular water and electrolyte and medical shock due to loss of extracellular electrolytes show the same clinical phenomena of peripheral circulatory collapse, oliguria and anoxia of the tissues


INTRACELLULAR
EXTRA-CELLULAR
140
120
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20
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160
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20
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18X017=3.0 ← HCO₃ → 10X037=37
112X017=19 ← Cl → 5X037=18
130X017=22 ← Na → 396X037=147
5X017=0.85 ← K → 162X037=60
02 01 ← 0 → 01 02 03 04
WATER IN LITERS

Fig 3 —Diagrammatic representation of body water and electrolyte in 1 Kg of tissue of a baby with dehydration resulting from diarrhea The left ordinate scale represents sodium and the right ordinate scale potassium both in millimoles per liter

When the circulation is interrupted or impaired by shock or exposure to cold [47] the intracellular fluids of the muscles lose potassium and gain sodium As was pointed out earlier, transfer of extracellular sodium to the cells produces metabolic acidosis when there is failure of renal adjustment of body electrolyte The cellular loss of potassium raises the concentration of potassium in serum If renal function is adequate, the potassium will be excreted in the urine A similar exchange of potassium for sodium in the cells occurs in anoxia and explains the rise in concentration of potassium in serum in peripheral vascular failure High concentrations of serum potassium are frequently found in diarrhea and diabetic coma before treatment is initiated despite the fact that the intracellular fluids are deficient in this ion This sort of reaction leading to urinary excretion of potassium explains in part the loss of this ion in diarrhea diabetic acidosis and other conditions However, the chief interest is the fact that internal shifts of sodium as well as loss of sodium from the body act together to produce acidosis

Alkalosis is usually the result of primary deficit of chloride produced by vomiting We have determined the retentions during recovery in 2 patients with congenital pyloric obstruction In both patients there was evidence of abnormally high intracellular sodium before treatment One patient retained a moderate amount of potassium during recovery, while the other did not Presumably, some patients with alkalosis due to primary deficit of chloride will get enough potassium from food to prevent loss of potassium, but others will show deficiency of potassium as well as greater deficit of chloride than sodium[48] It should be remembered that the presence of high intracellular sodium in alkalosis indicates that the relative excess of sodium over chloride in the body as a whole is much greater than the excess in extracellular fluids as revealed by the serum concentrations of sodium and chloride The large amount of intracellular sodium explains the slow response of some patients to administration of sodium chloride The fact that the potassium deficit persists means that, in accordance with the relationship depicted in figure 2, the kidneys will not excrete sodium so as to decrease the bicarbonate in the serum until potassium is available

Prolonged duodenal drainage after operative procedures provides the conditions for development of alkalosis with potassium deficiency The removal of the gastric fluid depletes the body of more chloride than sodium and produces alkalosis The administration of sodium chloride facilitates the excretion of potassium by the kidneys While sodium chloride is usually administered in sufficient amounts to replace extracellular electrolyte, the development of potassium deficiency alters the renal function so that metabolic alkalosis persists The alkalosis probably develops because of a chloride deficit, but it persists because of a deficiency of potassium These patients have low concentrations of potassium in serum Clinical and chemical improvement follows replacement of potassium as well as sodium chloride[49]

McQuarrie and others[15a] called attention to certain patients with Cushing's syndrome who have alkalosis refractory to administration of sodium chloride but responding to potassium salts The serums show not only high concentrations of bicarbonate but low chloride and potassium Kepler and others[50] studied a patient who recovered from alkalosis after removal of an adrenocortical tumor but in whom alkalosis again developed when metastases became manifest Analyses of the muscle of these patients would probably show low potassium and high sodium The patients suffer from primary deficit of potassium produced by certain adrenocortical steroids which increase the excretion of potassium by the kidneys The same picture can be produced by repeated injections of desoxycorticosterone acetate[17] or, less readily, by diets low in potassium The experimental animals receiving desoxycorticosterone acetate show high intracellular sodium and low potassium in muscle together with definite alkalosis of the serum

Edema represents chiefly an expansion of the extracellular water and electrolyte The mechanisms promoting the formation of edema which act locally in the exchange of fluid between the capillaries and interstitial fluids are increased hydrostatic pressure in heart failure and venous obstruction, decrease in the serum concentration of albumin in nutritional edema, nephrosis, nephritis and liver diseases, the presence of interstitial proteins in abnormal amounts in allergic reactions, myxedema and acute nephritis, and decreased absorption of fluids by the lymphatics in some diseases Ultimately, the volume and concentration of body fluids is controlled by the kidneys

III EXPENDITURE OF WATER AND ELECTROLYTE

Since the maintenance of body water and electrolyte demands that the intake equal the output, the factors controlling the expenditure of water and electrolyte must be understood by physicians The important pathways of losses of water and electrolyte are (1) the lungs and skin, (2) the urine and (3) the gastrointestinal tract The loss from the lungs and skin may be divided into the insensible losses occurring when there is no sweat and those involving activity of sweat glands The insensible water loss, excluding sweat, is roughly correlated with heat production, so that 42 Gm are lost for each 100 calories produced[51] Insensible water loss is accompanied with negligible losses of electrolyte

The substances presented to the kidneys for excretion are chiefly the end products of protein metabolism together with other osmotically active substances, of which electrolytes are the most important Renal load is proportional to the metabolic mixture being burned in the body Although different diets may contain different amounts of protein and electrolytes, the ordinary mixed diets of patients are sufficiently alike to permit an approximate estimation of the renal load from the calories During fasting, the renal load consists largely of the end product of protein metabolism together with electrolytes freed by the breakdown of the tissues The metabolic mixture during fasting probably varies somewhat with age and nutritional status When all other food is omitted, administration of dextrose reduces the renal load not only to the extent that protein is spared but also by abolishing ketosis, which requires excretion of these acids together with electrolyte[52] Minimal protein metabolism is attained by administration of 4 to 5 Gm of carbohydrate per 100 calories metabolized During fasting, the renal load depends on caloric production, except that the load is diminished by administration of dextrose The concentration of the urine determines the volume of water excreted by the kidneys and is dependent on the renal load, the water intake and the ability of the kidneys to form either a concentrated or dilute urine The amount of urinary water which contains a given load varies inversely with the urinary concentration[52b]

Stool water is dependent chiefly on the residue of the diet, which, in general, is proportional to the caloric intake During fasting, stool water is negligible unless there is diarrhea Normal stool water is about 4 Gm per 100 calories of diet and is such a small part of the total water expenditure that it is negligible for most purposes

Figure 4 shows the urinary volume per 100 calories on the ordinate and the urinary concentrations on the abscissa The area labeled "diet" gives the urinary volumes with the usual adult diet The area marked "dextrose" gives the urinary volumes during omission of all food except enough dextrose to produce maximal reduction of renal load Complete fasting requires intermediate volumes Artificially fed infants fall in the lower part of the area marked "diet" Because of the low content of protein and electrolyte in human milk, the renal load of the breast-fed infant is almost as low as that indicated by the dextrose area

The total water requirement is calculated as in the following manner 1 The caloric production is estimated from the age, weight, activity and food intake 2 The area appropriate for the diet, fasting or dextrose feeding, is chosen 3 From the chart, the urinary volume per 100 calories is obtained for an appropriate urinary concentration—usually at a specific gravity of 1 012 4 This volume is multiplied by one hundredth of the estimated caloric production to obtain the urinary volume 5 For each 100 calories metabolized, 42 ml of water are required to cover the insensible water loss The sum of the urinary volume and the insensible water loss gives the water expenditure, excluding sweat, stool water and abnormal losses Since complete absence of sweat is unlikely, 15 to 20 ml per 100 calories metabolized should be added to cover total water expenditure in the absence of abnormal losses or large volumes of sweat

For the normal person who is without sweat and on a normal diet and who has a urinary specific gravity of 1 012, the previous calculations indicate that water expenditure is 126 ml per 100 calories, or 140 ml, assigning a small allowance for sweat and stool water Since babies metabolize about 100 calories per kilogram, this figure gives the water requirement of infants per kilogram of body weight An adult metabolizing 3,000 calories would require 3,800 to 4,200 ml, or 54 to 60 ml per kilogram if the metabolism is 43 calories per kilogram If the values are calculated for a urinary specific gravity of 1 024, a baby would require 88 ml per kilogram of body weight if there is no sweating An adult would require 2,650 ml, or 38 ml per kilogram of body weight These figures are minimal, except as modified by reduced caloric production or diets giving low renal loads In calculating the water intake it should be kept in mind that the water available for expenditure is equal to the water intake plus the water of oxidation The water of oxidation is about 12 ml per 100 calories metabolized of the usual metabolic mixture During fasting a small amount of water is made available for expenditure by decrease in tissue water

The usually prescribed intake of infants is 150 ml per kilogram, which would lead to a urinary specific gravity of about 1 008 if there were no sweating or abnormal losses A similar intake per 100 calories metabolized in an adult would be 4,500 ml At this level of intake, the kidneys could, if so required, save about 62 ml of water per 100 calories metabolized, or a total of 1,860 ml for the average adult This level of intake may be necessary for most infants, since they cannot readily make known their need for water Adults will voluntarily regulate their intake so as to lead to a moderately concentrated urine It may be advisable to prescribe as high an intake as this for children and adults if sweating or abnormal losses are likely to occur

Unless there is considerable sweating or abnormal loss, the intake of electrolyte with the diet or that freed from breakdown of tissues during fasting is sufficient to replace the losses through skin, stools and urine The urine can be rendered practically free of sodium and chloride Data on the ability of the kidneys to conserve potassium are meager, but it appears that the normal kidney can produce urine which contains potassium at no greater concentration than that of the serum Therefore, the minimal urinary losses of electrolytes are 0.2 millimoles of chloride and sodium and 0 4 millimoles of potassium per 100 calories metabolized The minimal daily losses in 1 year old infants are about 2 millimoles of sodium chloride and 4 millimoles of potassium Corresponding adult losses would be about fourfold When food is taken, stool losses are about 0 1 millimoles of sodium chloride and 0 4 millimoles of potassium per 100 calories Stool electrolyte is negligible during fasting unless there is diarrhea

Metabolic studies indicate that the insensible water loss is slightly greater than can be accounted for by caloric production under ordinary circumstances in infants,[53] children[54] and adults[51] This observation indicates that a moderate amount of sweat is usually being formed An average estimate is 10 ml of water, 0 5 millimoles of sodium and chloride and 0 2 millimoles of potassium per 100 calories metabolized The average sweat losses in adults would be 300 ml of water, 15 millimoles of sodium and chloride and 6 millimoles of potassium

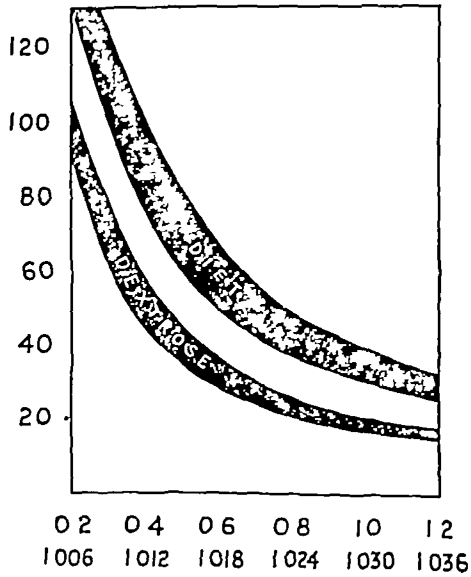

Fig 4—The urinary volume required to excrete the solids presented to the kidneys for excretion by the metabolism of 100 calories The ordinate scale represents milliliters of water per hundred calories, the upper abscissa scale represents osmoles per liter and the lower specific gravity

Allowances for growth are of little practical significance inasmuch as the usual diets provide abundant water and electrolyte The daily retentions during the first year of life are 10 ml of water, 0 6 millimoles of sodium, 0 4 millimoles of chloride and 1 5 millimoles of potassium During periods of rapid growth, the retentions may be twice these values, and from the third to the tenth year they may be about half as great

In summary, the water requirements can be predicted fairly confidently for normal conditions by the calculations described in the discussion of figure 4 The minimal losses of electrolyte in a 1 year old infant are probably about 8 millimoles each of chloride, sodium and potassium, or about 0 5 Gm of sodium chloride and 0 33 Gm of potassium The average minimal losses of an adult would be 2 5 Gm of sodium chloride and 1 5 Gm of potassium Probably, somewhat larger amounts should be given, since minimal expenditure cannot be anticipated

(To Be Continued)

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SATURDAY, MAY 27, 1950

UNITED STATES PHARMACOPEIA

One of the most important decennial meetings of the United States Pharmacopeial Convention was the recent meeting in Washington, D C Preceding the convention was a conference, at which time a series of simultaneous meetings was held on scientific subjects of pharmacopeial interest These included reviews of the status of pharmacopeial standards for protein hydrolysates, antibiotics, water for pharmaceutic uses, volatile oils, vegetable drugs and dermatologic preparations and other topics

The convention considered and adopted with some modification the recommendations of the Committee on Constitution and By-Laws, which was appointed at the 1940 convention meeting This committee reported at a special meeting in 1942 at which time the proposed by-laws were adopted, but the constitution was held over until the 1950 meeting The changes in the constitution were extensive but reflected the attempts of those who are interested in the United States Pharmacopeia to insure continued progress of this organization

At this convention officers and members of the Committee of Revision for the 1950-1960 convention were elected The president is Dr Allen H Bunce of Georgia Dr Bunce, who had been chairman of the Committee on Constitution and By-Laws, succeeded Dr Carey Eggleston Adley B Nichols and W Paul Briggs were reelected secretary and treasurer, respectively The vice president is Dr Theodore G Klumpp The Board of Trustees, which includes two representatives from medicine, two from pharmacy and two at large, consists of Robert L Swain, editor, *Drug Topics* and *Drug Trade News*, P H Costello, secretary, National Association of Boards of Pharmacy, Ernest Little of the College of Pharmacy, Rutgers University, Carson P Frailey, executive vice president, American Drug Manufacturers Association, Arthur C DeGraff, professor of therapeutics, New York University College of Medicine, and Austin Smith, editor of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION Swain, Costello and Little were members of the preceding Board of Trustees, the others are newly elected Lloyd C Miller was introduced as the director of the Committee of Revision for 1950-1960 He succeeded Dr E Fullerton Cook, who for five decades has worked closely with the United States Pharmacopeia Dr Cook gave untiring service during his time as director of the Committee of Revision and was eulogized on several occasions at the convention

The United States Pharmacopeia is an official compendium under the provisions of the Federal Food, Drug and Cosmetic Act and is of outstanding importance in the establishment of drug standards for the enforcement of this act Thus it has tremendous influence in industrial and other circles and is of great importance in the protection of the health of the people Furthermore, it is internationally known and has been officially recognized in a number of Latin American countries Those who have an opportunity to serve the Pharmacopeia and its interests have a right to cherish this opportunity Because of the nature of the Pharmacopeia and what it represents, those who are responsible for its affairs cannot think of personal interest, they must always have in mind the interest of the Pharmacopeia The newly elected officers and members of the Committee of Revision for the 1950-1960 United States Pharmacopeial Convention should have the continued support of medical, pharmacal and allied organizations in their work

RETROLENTAL FIBROPLASIA

Terry[1] in 1941 observed a fibroplastic overgrowth of persistent vascular sheath behind each crystalline lens in the eyes of a prematurely born infant In 1945 there were some 162 cases observed in the United States The syndrome, which Terry[2] characterized as retrolental fibroplasia, includes the following features an opaque vascularized membrane behind the lens, microphthalmia, shallow anterior chamber, fetal blue iris, thin ciliary processes in front of the opaque tissue, searching nystagmus, apparent photophobia, persistent hyaloid artery and often retinal separation A similar condition has been observed rarely in full term infants at birth, and always unilaterally

The pathogenesis of the syndrome appeared to be based on three conditions (1) persistence of some part of the tunica vasculosa lentis system, (2) a growth of embryonic tissue behind the crystalline lens and (3) persistence of the fibrillar structures of the vitreous humor

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[1] Terry T L Extreme Prematurity and Fibroblastic Overgrowth of Persistent Vascular Sheath Behind Each Crystalline Lens Am J Ophth **25** 203 (Feb) 1942

[2] Terry T L Ocular Maldevelopment in Extremely Premature Infants Retrolental Fibroplasia, VI General Consideration J A M A **128** 582 (June 23) 1945

The predisposing cause of this bilateral development appeared to be, in the opinion of Terry, premature birth in the stage early enough for the hyaloid artery with its tunica vasculosa lentis and pupillary membrane to be patent The condition develops largely, if not entirely, after birth The abnormality was observed in infants 4 to 6 months of age Separation of the retina was *probably* caused by traction of persistent strands of fibrillar vitreous which adhere firmly to the retina Terry speculated that precocious increase in blood pressure brought on before the hyaloid artery and the tunica vasculosa lentis disappear constitutes the principal factor After the development of increased blood pressure, hypertrophy of the hyaloid arterial system takes place, causing persistence of fibrillar vitreous and growth of a support of embryonic connective tissue

The hyaloid vascular system ceases to carry blood eight and a half months after conception, and infants born earlier than this have a functioning hyaloid vascular system In this meshwork the embryonic connective tissue can develop, thus producing retrolental fibroplasia

Krause[3] in 1946 reported 18 similar cases, which, however, he considered to be instances of congenital encephalo-ophthalmic dysplasia affecting the neuroectoderm primarily and associated structures secondarily at an early age On the basis of 50 cases and 17 autopsies, Reese and Payne[4] state that the basic lesion in this condition is a persistence in part or in toto of the primary vitreous with or without hyperplasia and with or without secondary changes consequent to hemorrhage, opening of the lens capsule and glaucoma Twenty per cent of their patients had skin hemangiomas at birth

Owens and Owens[5] were first to study the development of the lesion They studied the progress of the disease in the eyes of 25 infants In every case the eyes showed no abnormality at birth The Owenses emphasized particularly that all remnants of the hyaloid artery had disappeared before the onset of the early stage of the disease The earliest abnormality in their cases was dilatation of the retinal vessels followed by extensive retinal edema The arteries became tortuous, the retinal vessels became partly buried in masses of swollen retina As the disease progressed, the vitreous became hazy and the swollen retina raised In most cases the peripheral folds of retina fused behind the lens to form a complete membrane The Owenses concluded that the disease was not of congenital origin and that it was not related to the persistence of the hyaloid artery

In a recent issue of the *Archives of Ophthalmology* King[6] presented data on 238 patients with retrolental fibroplasia This series includes Terry's original 117 patients and 121 additional patients King points out that the incidence of retrolental fibroplasia varies for different localities and for different hospitals in the same locality Investigations into the causative factors of the condition were largely without positive results There was no evidence of a hereditary factor, nor were any social factors apparently responsible One hundred and seventy-seven of the patients in this series were born eight to 18 weeks prematurely The cause of prematurity was often obscure Maternal disease during pregnancy had no bearing on the occurrence of retrolental fibroplasia in the offspring The Rh factor was not of any significance Rubella occurred in only 1 case Of all the possible causes considered, exposure to light is the most tenable factor

The diagnosis of the condition is usually not difficult The two conditions that have to be differentiated from it are retinoblastoma and pseudoglioma The condition is, as a rule, bilateral, with the following signs (1) lack of differentiation of the iris, (2) shallow or flat anterior chamber, (3) posterior synechias, (4) membrane behind the lens, (5) elongated processes of the ciliary body, (6) vessels radiating over the surface of the membrane from a central point and (7) retinal detachments Congenital anomalies were not strikingly evident in this series The only one to occur in significant numbers was cutaneous hemangioma of the skin at birth Krause, Kinsey and Zacharias reported the incidence of hemangiomas in premature infants with retrolental fibroplasia to be 14 per cent but pointed out that the incidence for premature babies without infected eyes was 15 per cent In King's series, hemangiomas of the skin were present in 40 patients (17 5 per cent) Synechias were the commonest complication in this group Glaucoma is another important complication It was detected in 43, or 16 per cent, of the patients in King's series Terry emphasized the importance of retinal complications such as retinal separation, retinal folds or a healed lesion of chorioretinitis

Children with retrolental fibroplasia display the behavior patterns common to blind children Prematurely born children in general are slower in developing than full term children Children with retrolental fibroplasia do not show any higher incidence of retardation than the average group of premature children

The prognosis in retrolental fibroplasia is unfavorable, and both medical and surgical therapy are of little value The infant should be kept in a dark room Mydriatics and miotics are used to prevent the complication of posterior synechia and glaucoma Over 10 per cent of the infants born prematurely, weighing 3 pounds

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[3] Krause A C Congenital Encephalo-Ophthalmic Dysplasia Arch Ophth 36 387 (Oct) 1946

[4] Reese A B and Payne F Persistence and Hyperplasia of the Primary Vitreous (Tunica Vasculosa Lentis or Retrolental Fibroplasia) Am J Ophth 29 1 (Jan) 1946

[5] Owens W C and Owens E U Retrolental Fibroplasia in Premature Infants Tr Am Acad Ophth 53 18 (Sept. Oct.) 1948

[6] King M J Retrolental Fibroplasia A Clinical Study of 238 Cases Arch Ophth 43 694 (April) 1950

(1,361 Gm) or less, can be expected to be blind from retrolental fibroplasia, according to Terry If this percentage remains, at least 600 cases will occur annually, thus increasing the blind census materially

The disease is sufficiently frequent and severe to merit attention to prevention In the absence of knowledge of the causation of the condition, prophylactic measures should be directed toward prevention of prematurity

Current Comment

REGISTRATION UNDER THE HARRISON NARCOTIC ACT

Physicians who are registered under the Harrison Narcotic Act or under the Marihuana Tax Act must effect reregistration on or before July 1 to avoid a penalty Each year, despite the annual warnings in THE JOURNAL this requirement is overlooked by some physicians and unpleasant consequences follow Failure to register adds a penalty of 25 per cent to the tax payable and, in addition, subjects the physician to the possibility of a fine not exceeding $2,000 or to imprisonment for not exceeding five years, or to both As an act of grace the Commissioner of Internal Revenue has in the past years given some tardy registrants the choice between paying sums by way of compromise, a procedure authorized by law, or accepting criminal prosecution If this procedure does not produce the required promptness in reregistration, the commissioner will have no choice but to institute criminal prosecution

SYPHILITIC OPTIC ATROPHY

Klauder and Meyer[1] call attention to recent histologic studies which demonstrate that syphilitic optic atrophy occurs in two forms (1) an inflammatory form with secondary degeneration of the nerve fibers and (2) a primary degeneration in the form of tabetic atrophy of the nerve Bruetsch[2] observed, by staining alternating serial sections of optic pathways with toluidine blue and with Weil's myelin sheath stain, simultaneous existence of both the inflammatory and degenerative phase of syphilitic optic nerve atrophy He emphasized that the degenerative changes in optic atrophy are preceded by an inflammatory exudative phase Visual field defects may be caused by the exudative processes in the marginal zone before atrophy of the nerve fibers has taken place, and such defects may improve or disappear after antisyphilitic treatment Klauder and Meyer stress the necessity of an early ophthalmologic diagnosis, on the basis of a study of 397 patients with syphilitic primary optic nerve Among the earliest symptoms of syphilitic optic nerve they list loss of dark adaptation, visual field defect, loss of field for color and pallor of the optic disk They stress the necessity of an early ophthalmologic and perimetric examination of all patients with neurosyphilis regardless of whether the serologic reactions of the blood and spinal fluid are positive or negative The presence of pupillary abnormalities calls for examination of the cerebrospinal fluid in order to exclude optic nerve atrophy Treatment in the preatrophic stage in the cases reported by them prevented progress of the disease and preserved the visual acuity It appears, therefore, that the problem of syphilitic optic nerve atrophy as a cause of blindness is concerned principally with early diagnosis The ophthalmoscope and perimeter, according to these authors, are as essential as the spinal puncture needle in the diagnosis and management of syphilis and its complication, primary optic nerve atrophy

RESPONSE TO SURVEY OF PHYSICIANS' INCOMES

The first report on the number of returns in the survey of physicians' incomes indicates that more than 37,000 replies have been received by the U S Department of Commerce to the 100,000 short form (white) questionnaires mailed out by the Department of Commerce several weeks ago More than 50,000 returns are desired before June 15 Physicians who have not returned their white questionnaires, especially young physicians and others whose practices are not extensive, should do so soon Another group of questionnaires is now being mailed to 25,000 physicians who did not receive white questionnaires This group will be identified by the code number of the Bureau of Medical Economic Research on the returned franked envelope The purpose of the identifying number is to enable the Bureau of Medical Economic Research to address follow-up questionnaires to physicians who do not reply to the first mailing In fact, two follow-ups, if necessary, will be sent, in the hope of getting from 20,000 to 24,000 replies Of this group, 10,000 will receive the short form (buff in color) schedules, 15,000 will receive the long form (green), which covers 1945 to 1948 as well as 1949 Some physicians have objected to question 9 (which is number 8 on the green copies) because the physician is required to record the name of his town, which, along with his specialty, seems to be a violation of the secrecy of the return Only the size of the town is actually needed The Department of Commerce insists that requesting the name of the town is the only accurate way to get the correct population size It should be understood that a survey of physicians' incomes would have been made by the United States Department of Commerce alone if this joint survey had not been conducted

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[1] Klauder, J V, and Meyer, G P Early Diagnosis of Syphilitic Primary Optic Nerve Atrophy Arch Ophth **43** 537 (March) 1950

[2] Bruetsch, W L The Frequency of Syphilitic Primary Optic Atrophy in Dementia Paralytica A Clinico Anatomic Study, Am J Psychiat **104** 725 (May) 1948

WASHINGTON NEWS

Compulsory Health Insurance

Although national compulsory health insurance is a dead issue for this session of Congress, all indications in Washington are that it will not stay dead for long In the coming campaigns both the AFL and CIO are expected to make good use of a new pamphlet produced by the Democratic National Committee to promote the Truman Health Plan The title is "Better Medical Care That You Can Afford" It is expertly prepared for mass appeal By oversimplifying the issues, it runs through the whole complicated subject of national health and national health insurance in about five minutes' reading time In several places the pamphlet has condensed some significant facts right out of its pages For example, it states that under the Truman Plan, "you would choose your own doctor," and "the doctor would choose his patients" with no reference to the fact that in many cases practical considerations would make this choice one of theory only It also makes the flat statement that costs of operating voluntary plans 'are higher than national health insurance," ignoring the fact that any costs under a national health insurance plan are, at this stage, merely an estimate. Furthermore, the pamphlet says that a worker would pay one and one half per cent of earnings under $400 per month" without noting that this is merely a rough guess at its cost and that any deficit would have to come out of the United States Treasury Whatever its factual errors, and whatever the explanation for them, "Better Medical Care That You Can Afford' appears to be a sharp, effective piece of propaganda

Medical Reserves

News of importance to medical reserves of the Army, Navy and Air Force is developing in official announcements The first came from the Army, which said that all reserve officers expecting to take summer field training would be required to have their immunization inoculations brought up to date The Navy and Air Force also are drafting similar regulations but so far have not made public announcements For some months officials have been discussing a plan requiring all reserves to bring their medical records up to date with inoculations and booster injections However, this was deferred for obvious reasons If that decision is reversed later, it would mean a major medical program The reserves total almost 600,000 men and 335 000 are enrolled in the National Guard for which reinoculation also probably would be required. The Army is requiring men going on summer training to be immunized against smallpox typhoid paratyphoid and tetanus If the men have records of original immunization, the Army says that only a 'stimulating dose of typhoid-paratyphoid vaccine and tetanus toxoid need be administered

For the present this applies only to men planning to go on active duty this summer, for periods of 14 days or more A total of 26 431 medical officers are enrolled in the military reserves, but the Defense Department had no figures on the number scheduled for summer active duty tours

Incidentally the role of the reserves is not lessened under the new draft bill although they may not be called up until Congress gives its approval The House Armed Services Committee, in amending the bill, stated that the reserves must be the immediate back stoppers to the regular forces in an emergency They may be called into active duty as soon as Congress declares such an emergency "The ordering into service of reservists should precede not follow, the resorting to inductions of draftees, the Committee report said "This, in the Committee s view is exceedingly important.'

Veterans Economy Cuts

The Veterans Administration medical department while saved from two recent drastic economy cuts still has financial worries A VA request for $2 191 000 to keep its medical staff intact this year is before the House Appropriations Committee, with approval of the Budget Bureau It is not having so much success in getting through Congress another request for $20 000 000 (also for this year) to cover pay increases, mostly in the medical department In a third appeal, VA is trying for Budget Bureau approval of an additional $23,000,000, which would be added to next year's budget Without these three special funds, a total of $45,191,000, VA maintains it cannot get through the next twelve months VA medical department has another minor worry, it cannot determine what the House meant by "medical" personnel when it exempted them from a 10 per cent payroll slash Must cooks, bakers and laundry personnel be laid off? If so, some VA officials point out that the "medical" staffs' efficiency will be cut down The Senate, which has still to act on the House payroll cuts, might settle this question for VA

World Health Organization

This country technically is in arrears in its payment for support of the World Health Organization, whose assembly is meeting now in Geneva When Congress approved membership in WHO, it set a ceiling of $1,920,000 on our annual appropriation Last year WHO established a budget of seven million dollars for the calendar year 1950 which would call for a United States contribution of $2,500,000, or something like half a million in excess of our legal ceiling At the time WHO explained that, although the United States would be expected to contribute more dollars, its percentage of the total WHO budget was being reduced from 38 4 to 36

To allow for this added amount, legislation was introduced to increase our authorized contribution Congress deferred action on this request, but it did approve another $1,920,000 contribution The result is that currently the United States is running behind the budget established by WHO, although it is paid up to the last penny on what our own law allows

Government officials closely connected with WHO are not optimistic that the ceiling will be lifted at this session The difficulty is that this legislation (H J Res 334) would also increase United States contributions to a number of other international organizations Unfortunately for WHO, one of these organizations is the International Labor Organization Because ILO, whether accurately or not, is subject to criticism as a "red dominated organization,' the administration is reluctant to bring the bill out of the Rules Committee and onto the floor of the House so the prospect is that WHO will have to make out with the lesser amount, at least until the next session of Congress Next year, prospects are that the same situation will continue—the United States paying what Congress has agreed to, but not what WHO wants Last week the WHO finance committee reduced the United States contribution for 1951 from 36 to 35 per cent This means a reduction of $71,000 in the amount WHO believes the United States should pay However, the total United States contribution, according to the WHO budget, would still be almost $2 500,000, or about half a million more than Congress indicates it is willing to spend

Other FTC Actions

In another action, FTC reports a stipulation agreement with International Laboratories, Inc., of Rochester, N Y The company has agreed to stop representing that its product, Moone s Emerald Oil, has any therapeutic value in treatment of a variety of skin irritations " beyond relieving or alleviating the symptom of itching" In a second stipulation, Benson Laboratories, Inc., agreed to stop representing that Formula A-N-1, a medicinal preparation prevents or cures colds or is effective for relief of minor throat irritations due to colds The company also agreed to cease making other advertising claims The Commission says both stipulations were approved " in accordance with the Commission s policy of encouraging law observance through cooperation in certain types of cases where there has been no intent to defraud or mislead' This remedy was reported on by the Council on Pharmacy and Chemistry and the Council on Industrial Health in THE JOURNAL (131 1421 [Aug 24] 1946)

ORGANIZATION SECTION

Official Notes

TELEVISION

The television at the annual session of the American Medical Association in San Francisco will be provided through the *courtesy* of Smith, Kline and French Laboratories and will be broadcast from the Veterans Administration Hospital, Fort Miley, 42d Avenue and Clement Street, San Francisco, to the Masonic Temple, where visitors to the *Annual Session* may view it The television program was published in THE JOURNAL May 20 (*page 257*)

REVISED EDITION OF MOTION PICTURE REVIEWS NOW AVAILABLE

The Committee on Medical Motion Pictures has completed the second revised edition of the booklet entitled "Reviews of Medical Motion Pictures" This booklet now contains 225 reviews of *medical* and health films reviewed in THE JOURNAL to Jan 1, 1950 Each film has been indexed according to subject matter The purpose of these reviews is to provide a brief description and an evaluation of motion pictures which are available to the medical profession Each film is reviewed by competent authorities Copies are available at 25 cents each from the Order Department, American Medical Association, 535 North Dearborn Street, Chicago 10

Coming Medical Meetings

American Medical Association, San Francisco, June 26 30 Dr *George* F Lull 535 North Dearborn St, Chicago 10 Secretary

Aero Medical Association Chicago May 29 31 Dr Thomas H Sutherland, 214 S State St Marion Ohio Secretary

American Association for the Surgery of Trauma, Salt Lake City, June 22 24 Dr Charles G Johnston, 1512 St Antoine St, Detroit 26, Secretary

American College of Chest Physicians San Francisco June 22 25 Mr Murray Kornfeld, 500 N Dearborn St, Chicago 10, Executive Secretary

American College of Radiology San Francisco, June 25 Mr William C Stronach, 20 N Wacker Drive Chicago 6, Executive Secretary

American Dermatological Association Jasper National Park Alberta, Canada June 18 22 Dr Louis A Brunsting 102 Second Ave S W, Rochester Minn, Secretary

American Diabetes Association San Francisco, Hotel Whitcomb June 24 25 Dr John A Reed, 1 Nevins St, Brooklyn 17, Secretary

American Geriatrics Society New York Hotel Commodore June 1 3 Dr Malford W Thewlis *25 Mechanic St., Wakefield R I*, Secretary

American Hearing Society, Chicago Drake Hotel June 15 17 Mrs Frances E Lee 817 Fourteenth St N W Washington 5, D C, Secretary

American Heart Association San Francisco, Fairmont Hotel, June 22 25 Dr John J Sampson, 1775 Broadway, New York 19, Secretary

American Medical Women s Association Carmel Calif June 20 22 Dr Grace Talbott 909 Hyde St San Francisco 9 Secretary

American Neurological Association Atlantic City Claridge Hotel, June 12 14 Dr H Houston Merritt *710 W 168th St* New York 32, Secretary

American Ophthalmological Society Hot Springs Va The Homestead May 31 June *2* Dr Maynard C Wheeler *30 W 59th* St New York 19 *Secretary*

American Proctologic Society, Los Angeles July 1 5 Dr W Wendell Green, 1838 Parkwood Ave Toledo 2, Ohio, Secretary

American Society for the Study of Sterility San Francisco Sir Francis Drake Hotel June *24 25 Dr John O Haman*, 490 Post St San Francisco 2, Secretary

American Society of X Ray *Technicians* Columbus Ohio Deschler Wallick Hotel May 28 June 2 Genevieve J Eilert R T, 16 Fourteenth St, Fond du Lac, Wis Executive Secretary

American Urological Association Washington D C, Hotel Statler, May 29 June 1 Dr Charles H deT Shivers Boardwalk National Arcade Bldg Atlantic City N J Secretary

Association for the Study of Internal Secretions, San Francisco June 23 24 Dr Henry H Turner, 1200 N Walker St, Oklahoma City 3, Secretary

Conference of Presidents and Other Officers *of* State Medical Associations, San Francisco Palace Hotel June 25 Mr John E Farrell 106 Francis St Providence R I Secretary

Maine Medical Association, Poland Spring, June 18 20 Dr Frederick R Carter *142* High St Portland *3* Secretary

Medical Library Association Boston June 19 22 Miss Helen Hlavac, *209* East 23d St New York 10 Secretary

Minnesota State Medical Association Duluth June 12 14 Dr B B Souster *496 Lowry* Medical Arts Bldg St Paul 2, Secretary

Montana State Medical Association, Bozeman, Gallatin County High School, July 9 12 Dr Herbert T Caraway, 115 N 28th St, Billings Secretary

North Dakota State Medical Association Grand Forks May 27 30 Dr O A Sedlak 702 First Ave S Fargo Secretary

Oklahoma State Medical Association Oklahoma City June 4 7 Dr Lewis J Moorman, 210 Plaza Court Oklahoma City Secretary

Western Association of Industrial Physicians and Surgeons San Francisco June 25 Dr Christopher Leggo C & H Sugar Refining Corp Crockett Calif Secretary

Western Branch, *American* Public Health Association, Portland, Ore May 30 June 1 Mr *Walter S Mangold University* of California Berkeley Calif Secretary

International Meetings

International Anatomical Congress, Oxford, England, July 25 28 Secretary, Miss A M *Maynall, Department of* Human Anatomy, University Museum, Oxford, England

International Association for the Prevention of Blindness, London, England July 17 21 Prof P Bailliart, *47* rue de *Bellechasse*, Paris France Chairman

International Cancer Research Congress Paris, France, July 17 22 Secretariat, 6 Ave Marceau, Paris 8 France

International Congress of Ophthalmology London, England, July 17 21 Mr Keith Lyle, 45 Lincoln's Inn Fields London W C 2 England, Secretary

International Congress on Asthma Mont Dore, France, June 3 4 Secretariat 59 rue Bonaparte Paris France

International Pediatric Congress, Zurich Switzerland, July 24 28 Dr L Emmet Holt Jr, 477 First Ave, New York City 16, Secretary General

International Union Against Venereal Diseases, Zurich Switzerland, July 29 Aug 2 Dr A Cavaillon, Institut A Fournier, 25 Blvd St Jacques, Paris 14em, France Secretary

State Legislation

Rhode Island

Bills Introduced.—H 790 proposes regulations requiring corporations to engage **registered or practical nurses** or first aid workers depending on the number of employees in the corporation S 301 proposes to amend the law relating to **the admissibility of evidence** by providing that a statement of fact or opinion on a subject of science or art contained in a published treatise, periodical book or pamphlet shall in the discretion of the court, and if the court finds that it is relevant and that the writer of such statement is recognized in his profession or calling as an expert on the subject be admissible in actions of contract or tort for malpractice error or mistake against physicians surgeons dentists optometrists hospitals and sanatoriums as evidence tending to prove said fact or as opinion evidence The party intending to offer such evidence however would have to give the adverse party notice at least three days before the trial of the action of his intention by stating the name of the writer of the statement and the title of the treatise periodical book or pamphlet in which it is contained

Bills Enacted—H 823 was approved April 26 1950 It amends the **workmen's compensation act** by providing among other things that, if any employee refuses to submit to any examination provided for in the act or in any way obstructs such examination his rights to compensation shall be suspended and his compensation during such period of suspension may be forfeited S 265 was approved *April 14* 1950 It amends the law relating to medical examiners by among other things **increasing the salary of the medical examiner and county medical examiners** providing for compensation for travel expense of such officials and making the appointment of county medical examiners mandatory rather than permissive

South Carolina

Bill Enacted—H 2579 proposes that **employers in textile mills** shall not require employees who have been absent from their jobs because of sickness to submit to a physical examination before resuming their work *regardless of the number of days* which are lost because of sickness unless the employer shall produce a verified statement of at least two reputable physicians that the sickness of the employee may have impaired his ability to continue to perform his work

GOVERNMENT SERVICES

PUBLIC HEALTH SERVICE

NEW HILL-BURTON ACT HOSPITALS

The Public Health Service by March 31, 1950 approved a total of 1,224 construction projects for hospitals and health centers under the Hospital Survey and Construction Act Hospital additions and new hospitals accounted for 1,010 projects, and the remaining 214 were for health centers The estimated cost of the projects is over $822 million, of which over $282 million will come from federal funds

The 1,010 hospital construction projects that have received approval thus far would provide 57,852 additional hospital beds The accompanying tables show the states and territories with the largest number of beds and those with the largest number of health centers

TABLE 1—*Number of Approved Hospital Projects*

Texas	70
Mississippi	57
North Carolina	50
New York	49
South Carolina	47
Georgia	41

TABLE 2—*Number of Additional Hospitals Beds to Be Provided*

Texas	4 005
New York	3 140
Pennsylvania	2 922
Ohio	2 820
North Carolina	2 761
Mississippi	2 674
Puerto Rico	2 224

TABLE 3—*Number of Approved Health Centers*

South Carolina	45
Mississippi	42
Georgia	29
Louisiana	14
Ohio	10
Virginia	9

There are 163 projects that have been completed, making 3 758 additional beds available, and 45 health centers As of March 31 projects under construction 598 in all, included 518 hospital additions or new hospitals and 80 health centers A total of 31 618 hospital beds will be added by these projects A total of 463 projects have received initial approval but are still in the blueprint stage

TUBERCULOSIS SURVEYS

The Tuberculosis Division has reviewed information obtained in the course of taking about 3,500 000 small roentgenograms of the chest during 11 surveys from 1947 through 1949 in which the Public Health Service participated with state and local health departments and community health organizations The goal in each survey was to reach at least 80 per cent of the population 15 years of age and over The surveys indicated that 2 to 5 per cent of the small roentgenograms of the chest showed pathologic changes suspected of being tuberculous 1 3 to 2 8 per cent were suspect for tuberculosis The comparative incidence of suspected disease was more or less constant for all surveys Differences in local criteria for interpretation resulted in classification of 20 to 45 per cent of the 14 by 17 inch confirmatory roentgenograms as normal Of those recalled for 14 by 17 inch roentgenograms 80 to 92 per cent responded Tuberculosis suspects found by confirmatory 14 by 17 inch roentgenograms in the surveys comprised consistently close to 1 per cent of the total number of persons screened Complete diagnoses have not been reported for all suspects found, but available records indicate that about 1 out of every 10 tuberculosis suspects referred for diagnosis have been found to have active disease Another 2 or 3 out of the 10 have been considered to have lesions requiring further observation and supervision A greater number of active cases of the disease were found among men than among women, and among older age groups than among the younger ones

CERTIFIED BY SPECIALTY BOARDS

In addition to those listed in THE JOURNAL May 6, 1950, page 122, the following commissioned medical officers of the Public Health Service have been certified by American specialty boards This completes the list of commissioned corps personnel certified by specialty boards in 1949

PREVENTIVE MEDICINE AND PUBLIC HEALTH

Paul W Kabler senior surgeon
Max R Kiesselbach senior surgeon
Leslie W Knott senior surgeon
Frederick W Kratz senior surgeon
Vernon B Link senior surgeon
John H Linson medical director
Jack Masur medical director
John R McGibony medical director
Myron D Miller medical director
Benno K Milmore surgeon
Paul D Mossman medical director
Joseph W Mountin assistant surgeon general
Byron J Olson medical director
Carroll E Palmer medical director
Emil E Palmquist medical director
Hildrus A Poindexter medical director
John D Porterfield surgeon
Arthur B Price medical director
Griffith E Quinby surgeon
Maurice A Roe medical director
Milton I Roemer, surgeon
Leonard S Rosenfeld senior surgeon
Adolph Rumreich medical director
Leonard A Scheele surgeon general
Henry C Schumacher medical director
William H Sebrell Jr, medical director
James K Shafer senior surgeon
Charles E Smith surgeon
Robert R Smith senior surgeon
Ralph B Snavely medical director
Paul H Stevenson medical director
Russell E Teague senior surgeon
James G Townsend medical director
Glen S Usher senior surgeon
Raymond A Vonderlehr medical director
Mary Walton surgeon
Francis J Weber *senior surgeon*
Hugh C Wilkerson medical director
Charles L Williams Sr assistant *surgeon general*
Louis L Williams Jr medical director
William G Workman medical director
Mark V Ziegler medical director

NEUROLOGY AND PSYCHIATRY

James F Maddux senior surgeon

SURGERY

James L Southworth senior surgeon

FELLOWS FROM JAPAN

Drs Hideo Kunabe and Tomio Ogata, *of Japan have arrived in the United States for a 90 day training program conducted under a fellowship plan established by the Military Government of Japan* Dr Kunabe is general manager of the Antituberculosis Association of Japan He will make a study of tuberculosis control programs in the United States and will also review clinical and research programs Dr Ogata is editor in chief of the *Journal of the Japanese Medical Association* and professor of serology at the University of Tokyo Medical School His training will be concerned with the production of medical and health journals and other publications and the use of medical exhibits and other visual aids

PERSONAL

Dr John H Linson, a medical officer with the Public Health Service for 36 years will retire April 1 Dr Linson, a native of Nebraska received his degree in medicine at Rush Medical College in 1912 and was commissioned in the Public Health Service in 1914

Dr Winfield K. Sharp will retire from the Public Health Service on Aug 1, 1950, after 37 years of service Dr Sharp has been detailed to the Alabama State Health Department since February of this year, he will continue to work there after his retirement

Dr Marion F Haralson medical officer with the Public Health Service for over 30 years has retired Since 1947 he has been assigned to the El Paso office of the Pan American Sanitary Bureau where he has taken part in promoting the general health along the United States-Mexican border

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest such as relate to society activities, new hospitals, education and public health Programs should be received at least two weeks before the date of meeting)

ALABAMA

The Noland Hospital—With the unveiling of a bronze plaque before the Employees' Hospital of the Tennessee Coal, Iron and Railroad Company, Fairfield, the name of the late Dr Lloyd Noland on April 22 became affixed to the institution he founded 30 years ago and directed until his death last year The speaker at the dedication was Dr George V Brindley of Temple, Texas, president of the Southern Surgical Association Messages from Benjamin F Fairless, president of U S Steel Corporation, and Dr Ernest E Irons, President of the American Medical Association, were read at the ceremony Dr Noland came to the Birmingham district in 1913 to assume the task of improving the health situation among TCI employees Under his direction a health service was set up which reached all company villages and which in a few years greatly reduced the incidence of infectious diseases Built under Dr Noland's supervision, the 350 bed hospital which now bears his name was completed in 1919 It has complete medical, surgical and dental facilities for the company's more than 30,000 employees and their families

CALIFORNIA

Surgeons Establish Research Fund—A $3,500 research fund has been presented to the department of surgery of the University of California Medical School, Los Angeles, by the Bay District Surgical Society The society is made up of a group of Santa Monica, Beverly Hills and Los Angeles surgeons The fund will be used to set up a program for the investigation of diseases of the heart and lungs but primarily directed toward heart diseases resulting from rheumatic fever Members of the staff of the medical school and the Wadsworth General Hospital, West Los Angeles, will cooperate in the study The program will be initiated in the temporary buildings of the medical school It will be transferred to the teaching hospital on completion of the new medical center

COLORADO

Course in Cytologic Diagnosis of Cancer—A course in exfoliative cytology for the diagnosis of cancer by the smear technic will be offered at the University of Colorado School of Medicine, Denver, for qualified physicians The class will meet daily for two weeks, beginning July 24 and ending August 5 Material will be available for study with correlation of clinical, roentgen and pathologic findings Members of the staff of the medical school and associated hospitals will cooperate in presenting the course The tuition is $100 Physicians interested should write Walter T Wikle, M D, Director, Laboratory of Exfoliative Cytology, University of Colorado School of Medicine, 4200 East Ninth Avenue, Denver 7

CONNECTICUT

Personal—The National Society for the Prevention of Blindness has awarded a grant to Dr Eugene M Blake of the department of ophthalmology, Yale University School of Medicine, New Haven, for a study of pituitary adrenocorticotropic hormone (ACTH) in the treatment of glaucoma

Appoint Director of Hospital Administration—Mr George S Buis, assistant executive secretary of the American College of Hospital Administrators in Chicago, has been appointed director of the program in hospital administration at Yale University, New Haven, effective July 1, succeeding Dr Clement C Clay, who organized the Yale program in 1947 Mr Buis is a former superintendent of Brackenridge Hospital in Austin, Texas Since 1946 he has directed many of the institutes conducted by the American College of Hospital Administrators A graduate of the University of Iowa, Mr Buis in 1935-1936 held a Rosenwald Fellowship in Hospital Administration at the University of Chicago, where he received a master's degree in business administration in 1937

State Medical Election—Dr Thomas J Danaher, Torrington, assumed office as president of the Connecticut State Medical Society during its recent annual meeting in Waterbury Dr Danaher succeeds Dr Charles H Sprague of Bridgeport Dr C Charles Burlingame, Hartford, was named president-elect, Dr F Brae Rafferty, Willimantic, first vice president, and Dr J Howard Staub, Stamford, second vice president. Dr Cole B Gibson, Meriden, was reelected treasurer, Dr Creighton Barker, New Haven, executive secretary, Dr Stanley B Weld, Hartford, editor of the *Connecticut State Medical Journal*, and Dr Herbert Thoms, New Haven, literary editor

ILLINOIS

Society News—At a meeting of the Illinois Association of Medical Health Officers held recently in Springfield the following officers were elected for 1950-1951 president, Dr Samuel N Mallison of District Health Office No 6, Champaign, vice president, Dr Leroy L Fatherree of the Will County Health Department, Joliet, and secretary-treasurer, Dr Herbert S Ratner, health commissioner of Oak Park

Chicago

Personal—Lieut Col James D Majarakis has been appointed executive officer of the 427th General Hospital, a 1,000 bed U S Army reserve unit which is sponsored by the University of Illinois College of Medicine During World War II he served as chief of a surgical team

Medical Scholarships—Two subsidiary scholarships, amounting to $10,000 each, have been given to the Chicago Medical School One in honor of Mrs Mary Feinberg of Allentown, Pa , and Miami Beach, Fla , has been given by Mr Jacob Feinberg and family The other, given by an anonymous donor of Miami Beach, is in honor of Mrs Milton S Saslow, Howard A Engle and Morris Blau, all of that city

Appointment to Institution for Tuberculosis Research—Dr Stanley W Olson, dean of the University of Illinois School of Medicine, has been appointed by the University of Illinois Board of Trustees to the Board of Directors of the Institution for Tuberculosis Research, to fill the vacancy on the five man board The Institution for Tuberculosis Research was established by the Sixty-Sixth General Assembly of Illinois for the production, distribution and application of BCG and other methods and materials for the prevention of tuberculosis and for conducting research in tuberculosis

New Dermatologic Society—A group of dermatologists practicing in the Chicago area formed the Metropolitan Dermatological Society of Chicago, incorporated under the laws of Illinois, on March 15 Qualification for fellowship is board certification Associate membership is limited to those eligible for board examination Meetings will be held on the second Wednesday of each month from October through May Place of the meetings will be the dermatologic services of the fellows in alternation The present officers are Drs Theodore K Lawless, president, Irving M Cobin, Joliet, vice president, and Tibor Benedek, secretary-treasurer

New Department of Public Health—Howard J Shaughnessy, Ph D , professor of bacteriology since 1943 and chief of the division of laboratories of the Illinois Department of Public Health, has been appointed professor and head of the newly created department of public health at the University of Illinois College of Medicine, effective June 1 He will continue to serve as director of laboratories of the state department The university will offer graduate instruction in public health leading to a master of science degree The university plans eventually to train specialists in public health administration, health education, nursing, nutrition, laboratory practice, statistics, engineering, as well as epidemiology, venereal disease control, tuberculosis control, school health, industrial health and sanitary science A program of research also will be undertaken by the department

INDIANA

Course in Microbiology—The third annual Industrial Microbiology short course will be held on the Purdue University campus in Lafayette June 19 to July 1 An intensive two week program is being planned for research and production directors in microbiology laboratories and for technicians, as well as a refresher course for college teachers and research workers Additional information may be obtained from Charles L Porter, Ph D , School of Science, Purdue University, Lafayette.

IOWA

Public Meeting on British Medical Practice—The Dubuque County Medical Society on May 10 was host at a dinner to more than 200 persons representing labor unions, civic and church groups, dentistry, nursing, pharmacy and law After dinner the guests and the general public met at the senior high school auditorium, where, under the sponsorship of the medical society and the Dubuque Adult Educational Forum, an open forum was held on the British system of medical practice Guest speakers were Dr Ralph J Gampell of San Francisco formerly from Manchester, England, and Mrs Molly Moon Samore of Sioux City formerly from Lancastershire, England Dr Gampell spoke on "Medical Practice Under the British System," and Mrs Samore, 'The Patient Under the British Scheme"

MICHIGAN

Course in Industrial Hygiene and Human Relations—The University of Michigan School of Public Health, Ann Arbor is offering an inservice training course in Industrial Hygiene and Human Relations for Safety Personnel on June 19 21 The subjects covered will include sanitation, plant layout, plant skin hazards and industrial health hazards, such as toxic metals, dusts and gases This course is designed for all those responsible for safety However, all interested persons are invited to attend Application for enrolment should be addressed to H E Miller, School of Public Health, 109 South Observatory Street, Ann Arbor Mich The fee is $5

Cancer Clinic Opens—A cancer control clinic under the joint auspices of the American Cancer Society the Detroit Institute of Cancer Research and Wayne University and staffed by Wayne University College of Medicine was opened May 1 in the American Cancer Society Building John R and East Hancock streets The service will extend to all persons free of charge The clinic will not accept for examination any patient in whom the diagnosis of cancer has been made nor will any treatment be given Information will be forwarded to the patient s own physician Appointments may be made on Monday Wednesday and Thursday from 3 to 5 p m and on Tuesday from 7 to 9 p m The clinic is to serve also as a training facility for members of the medical profession Beginning July 1, a limited number of qualified doctors of medicine mav enroll for the summer quarter in a special class of cancer diagnosis Regular enrolment for the fall quarter will be accepted at this time by the dean of the college of medicine. The tuition is $50 per quarter

NEW YORK

Personals—Dr Gerald B Manley of Geneseo has been appointed a member of the Public Health Council succeeding Dr Walter A Leonard, Cambridge, who has been a member since 1932 Dr Manley is health officer of the Consolidated District, Town of Leicester, and chairman of the Livingston County Public Health Committee.——Dr F Robert Freckleton deputy commissioner Rensselaer County Health Department since 1947, has been appointed commissioner of the Columbia County Health Department He is a graduate of Tulane University of Louisiana School of Medicine, New Orleans——Dr Frederick S Wetherell editor and founder of the *Bulletin of the Onondaga County Medical Society and the Syracuse Academy of Medicine* has resigned after 14 years' service

Augustus B Wadsworth Lecture—Dr Warfield T Longcope emeritus professor of medicine, Johns Hopkins University School of Medicine Baltimore presented the first Augustus B Wadsworth Lecture, on "Clinical Implications of Recent Advances in the Medical Sciences," in Albany May 24 The lectureship has been established by the staff of the Division of Laboratories and Research of the New York State Department of Health and the Council of the New York State Association of Public Health Laboratories Dr Wadsworth retired as director of the Division of Laboratories and Research in 1945 after 31 years' continuous service. He is a graduate of the Massachusetts Institute of Technology, Cambridge and of the Columbia University College of Physicians and Surgeons, New York

New York City

Lay Cornerstone for Institute—Cornerstone-laying ceremonies were held May 24 for the Institute of Physical Medicine and Rehabilitation the first unit in the new university section of the New York University-Bellevue Medical Center The building will be ready for occupancy late this year

Course in Occupational Skin Diseases—Representatives of labor, industry and the New York State Workmen s Compensation Board will cooperate with the faculty of New York University Post Graduate Medical School to give a two week intensive course in Occupational Dermatoses' June 5 16 The course, to be presented jointly by the medical school s departments of dermatology and syphilology, and industrial medicine, under the auspices of the Institute of Industrial Medicine of the New York University-Bellevue Medical Center, will consist of lectures and demonstrations designed to provide basic instruction in major problems relating to industrial skin diseases Sessions will be held in Erdmann Auditorium, University Hospital, 303 East 20th Street, and the Pathology Lecture Room of the Skin and Cancer Unit of the Medical Center, 330 Second Avenue Applications should be directed to the Office of the Dean, New York University Post-Graduate Medical School, 477 First Avenue, New York 16

Mental Hygiene Services Report—Dr John F Mahoney, health commissioner released a report April 22 embodying recommendations resulting from a study of mental hygiene in relation to the work of the department made by Dr Jules V Coleman, former associate professor of psychiatry, University of Colorado Medical School The study was financed by a grant from the New York Foundation, Inc. The recommendations center about the concept that the department should concern itself with the emotional problems of persons served by the department rather than with establishing specialized clinics for the care and treatment of the occasional patient with neurotic or psychotic disorders In the operation of a mental hygiene program, the report said, special attention should be given to work in the department's 74 child health stations, which serve 100,000 infants and preschool children It was recommended that at least half of the effort put into any mental hygiene work be devoted to child health services The report emphasized that the greatest help can be given patients by present members of the health department staff in their regular contacts with patients Therefore Dr Coleman recommended training present professional staff members, particularly doctors and nurses, in the fundamentals of mental hygiene and the handling of emotional and personality difficulties

OHIO

Professor Crafts to Head Anatomy Department—Now a faculty member of the department of anatomy of the Boston University School of Medicine, Roger C Crafts, Ph D, has been appointed head of the same department in the University of Cincinnati College of Medicine, effective June 1 Dr Crafts will fill the Francis Brunning chair of anatomy, succeeding Joseph L Schwind, Ph D, who died in 1948 Born in 1911 in Maine, Dr Crafts received the bachelor of science degree in 1933 from Bates College there He taught at the College of Physicians and Surgeons, Columbia University, New York, from 1939 to 1940 when he received the doctor of philosophy degree. Going to Boston University in 1941, he held the rank of assistant professor of anatomy for two years, then was promoted to the rank of associate professor During the war he was with the Office of Naval Research

PENNSYLVANIA

Air Pollution Mobile Unit—The Pennsylvania Department of Health has secured an air pollution and industrial hygiene laboratory which will be placed in service by the Bureau of Industrial Hygiene. The mobile unit is equipped with more than 25 scientific devices for field sampling and quantitative and qualitative analyses of atmosphere in industrial communities and factories The mobile laboratory will be under the supervision of the state s new Air Pollution Division, Pittsburgh Laboratory

Philadelphia

Society News—At the annual business meeting of the Philadelphia Laryngological Society on May 2, the following officers were elected for the coming year Drs Thomas F Furlong Jr, Ardmore, Pa president, Harry P Schenck vice president, William J Hitschler, treasurer, and John J O Keefe, secretary

Alumni Clinics—The Medical Alumni Society of the University of Pennsylvania will hold medical and surgical clinics at the University Hospital from 9 30 a m to 11 30 a m on Alumni Day, June 17 After the clinics the society will have luncheon at the Penn-Sheraton Hotel Information may be obtained from Miss Frances R Houston executive secretary, Medical Alumni Society, University of Pennsylvania School of Medicine.

Personals—At a recent meeting of the Board of Trustees of the Philadelphia College of Pharmacy and Science Dr Leonard D Frescoln was elected a trustee of the college——Dr S Clyde Strickland has been appointed a staff physician in the Sharp and Dohme Medical Division in Philadelphia. A native of New Glasgow, Nova Scotia Canada his duties with the Medical Division will be to conduct clinical investigations on new products developed by the Medical Research Division.

Pittsburgh

Postgraduate Symposium—The University of Pittsburgh School of Medicine will present a postgraduate symposium on Basic Sciences Related to Anesthesiology June 19-23 in cooperation with the departments of anesthesiology of St Francis, Allegheny General and Mercy hospitals The course will be limited to 30 participants, and the fee is $25 Information may be obtained from the Chairman, Committee on Graduate Medical Education, University of Pittsburgh School of Medicine

UTAH

Mental Health Institute—A Mental Health Institute for Public Health Physicians of the ten state Intermountain area will be held in Salt Lake City under the auspices of the Department of Psychiatry of the University of Utah School of Medicine, Salt Lake City, June 12-22 This institute has been made possible by a grant from the U S Public Health Service The dean of the faculty will be Dr Jules V Coleman, associate professor of psychiatry at the University of Colorado School of Medicine, Denver Other faculty members will be Dr Earl D Bond, professor emeritus of psychiatry, University of Pennsylvania School of Medicine, Philadelphia, Dr Edward D Greenwood, director of Children's Division, Menninger Foundation, Topeka, Kan, Dr Frederick C Redlich, professor of psychiatry, Yale University School of Medicine, New Haven, Conn, Dr Winfield S Wilder, of Great Falls (Mont) Mental Hygiene Clinic, Dr James A Crabtree, professor of public health practice, University of Pittsburgh, Graduate School of Public Health, Dr Hyrum L Marshall, professor of public health and preventive medicine and acting dean of the University of Utah College of Medicine, and Dr Estella Ford Warner, U S Public Health Service, Washington, D C Members of the University of Utah department of psychiatry who will be faculty members include Drs Charles H Branch and Dr Leonard H Taboroff, Topeka, Kan

VIRGINIA

Dr Hagood to Receive Honorary Degree—Dr James D Hagood will be awarded an honorary master of science degree in general medicine at the Commencement program of the Medical College of Virginia on June 6 This is a new degree established by the college to give recognition to the importance of the general practice phase of medicine. Dr Hagood was chosen by the college as the first recipient of the degree He was selected Virginia practitioner of the year 1948 and is now president of the Virginia Academy of General Practice

WASHINGTON

Internists Meet in Spokane—The first annual meeting of the newly organized Spokane Society of Internal Medicine was held at the Spokane City Club May 13 Dr Robert H Williams, professor and executive officer of the department of medicine, University of Washington, Seattle, was the guest speaker His subjects were "Therapy of Pyelonephritis with Special Consideration of Its Pathologic Physiology" and "Recent Advances in Physiology of the Thyroid and in Treatment of Its Disorders" Additional papers and panel discussions were presented by members of the society At the evening banquet Dr Williams discussed "Recent Developments and Future Plans of the Department of Medicine of the University of Washington"

WISCONSIN

Dr Eberbach to Direct Department of Surgery—Dr Carl W Eberbach has been made director of the department of general surgery at Marquette University School of Medicine, Milwaukee, succeeding Dr Frederick A Stratton, who retired (THE JOURNAL, January 28, page 268) after 43 years at the university Dr Eberbach was chief of staff at Milwaukee Passavant Hospital and president of the Wisconsin Surgical Society He graduated from the University of Michigan Medical School, Ann Arbor, in 1916 He was a resident instructor and assistant professor of surgery at Michigan from 1920 to 1927, when he joined the faculty of Marquette

Symposium on Malignant Diseases—The University of Wisconsin Medical School, Madison, will present a postgraduate symposium on malignant diseases in the auditorium of the Service Memorial Institutes Building June 20-22 The subject will be covered from the standpoint of the various diagnostic technics Included also will be discussion of the technic and limitations of the Papanicolaou Cytologic Diagnostic Method The faculty will include distinguished speakers from outside the state as well as members of the medical school Registration may be made in advance by mail Tuition fees for the course, $25, should be made payable to the University of Wisconsin All inquiries should be addressed to the University of Wisconsin Medical School, 418 North Randall Avenue, Madison 6

GENERAL

International Congress on Microbiology—The fifth International Congress on Microbiology will be held at Rio de Janeiro, August 17-24 The fiftieth anniversary of the Oswaldo Cruz Institute will be celebrated at the same time The secretary general is Dr Joaquim Travassos, Instituto Oswaldo Cruz, Caixa Postal 926, Rio de Janeiro Brazil

Editor Retires—With the February issue of the *Journal of Comparative Neurology* Dr Gerhardt von Bonin, Chicago, took over as managing editor, replacing Davenport Hooker, D Sc, Pittsburgh, editor since 1933, who retired Manuscripts originating in the Western Hemisphere should be sent to Dr von Bonin at the University of Illinois College of Medicine, 1853 West Polk Street, Chicago 12

Distribution of Medical Journals for Foreign Relief—The Educational Reconstruction Committee of the American Council of Voluntary Agencies for Foreign Service, Inc, as a part of their work as a clearing house agency, will accept for placement files of medical magazines which physicians may wish to donate for foreign relief Through its service the Unitarian Service Committee and the Greek War Relief Association have accepted such files for their voluntary agencies

Directory of Medical Illustrators—The directory issue of *Graphics*, the official publication of the Association of Medical Illustrators, contains the name, address, training, professional experience and reference to major published work of each member Other information pertaining to the profession is included The journal, to be issued on June 1, will be available to those requiring medical illustration service and will be sent free of charge on request to the editor, Miss Helen Lorraine, 5212 Sylvan Road, Richmond 25, Va

First Medical Regiment Reunion—Former members of the regiment are urged to join in the first big reunion to be held during the American Medical Association meeting in San Francisco, June 26-30 Make plans now to attend the convention and this reunion at the Claremont Hotel, Berkeley, Wednesday, June 28, 1950 Cocktails—6 30, Dinner—8 00, $3 50 per plate Send reservation and check to Charles B Hudson, M D, 400 29th Street, Oakland 9, Calif

Imposter—A "Dr Benton of Baltimore," reportedly posing as president of the Maryland Society for the Prevention of Blindness, recently called at the office of the Minnesota Society for the Prevention of Blindness After gaining confidence through a comparison of the state program with that of Maryland, he cashed a $40 check, drawn on the Equitable Trust of Baltimore, in the office of one of the physicians in the building The check was returned marked "signature illegible" Investigation by the Minnesota society proved that "Dr Benton's" story was not true.

Medical Historians Meeting—The American Association of the History of Medicine held its annual meeting at the Somerset Hotel, Boston, May 21-23 The one-hundredth anniversary of the birth of Dr William Henry Welch, founder of the Johns Hopkins University School of Medicine and the School of Hygiene and Public Health, Baltimore, was observed Sunday with appropriate papers The Fielding H Garrison Lecture was presented by Roland H Bainton, Ph D, New Haven, Conn, on "Michael Servetus, Physician" At the dinner Monday evening George Sarton, LL D, Harvard University, spoke on "Robert Boyle—the Sceptical Chymist"

Western Industrial Physicians Meeting—The Western Association of Industrial Physicians and Surgeons invites all American Medical Association members to attend its meeting on June 25 from 9 a m to 5 p m in the Curran Theater, 455 Geary Street, San Francisco The program includes Tetanus Prophylaxis in Previously Immunized Persons, Dr Rodney R Beard, San Francisco, Medical Administrative Problems in Workmens Compensation Cases, a panel, A Rest Regimen for Acute Back Sprain, Drs R Christopher Leggo, Crockett, Calif, and Harry R Walker, Oakland Calif, Psychosis a Side Door out of Industry, Dr Frank F Tallman Sacramento, Calif, and Job Placement in the Rehabilitation of Alcoholics, a panel

International Congress of Surgery—The Seventh International Congress of Surgery will be held at Buenos Aires on August 1-5 at the headquarters of the Faculty of Medical Sciences and Dentistry under the auspices of the Argentine government It is organized by the Argentine Chapter of the International College of Surgeons of Geneva, Switzerland, under the chairmanship of Dr Carlos I Rivas, who presides also as chairman of the Executive Committee of the Congress An invitation is extended to contribute to the congress with scientific work and to send an American delegation Information can be obtained from Exprinter S A, San Martin 176, Buenos Aires, and All Nations Travel Bureau, 38 South Dearborn Street, Chicago

Course for Orthoptic Technicians—The American Orthoptic Council will present its third annual training course for orthoptic technicians beginning July 5 in Boston This course was given in Maine in 1948 and in Boston in 1949 The didactic portion will last through August 30, the tuition fee being $150 and room and board $100, and the practical portion will be given in various teaching clinics and offices throughout the country during the succeeding year Ophthalmologists and certified orthoptic technicians will aid Dr Walter B Lancaster, Boston with the didactic instruction Scholarships for worthy students may be available Information may be obtained from the office of the American Orthoptic Council, 1605 22nd Street, N W, Washington 8, D C The deadline for receipt of applications is July 1

WHO Committee on Hospital Statistics—Dr Edwin L Crosby, director of the Johns Hopkins Hospital, has been appointed United States representative to a World Health Organization committee on hospital statistics The new committee was established in accordance with instructions received from the Second World Health Assembly As a subcommittee to the Expert Committee on Health Statistics it will initiate proper action in the field of hospital statistics with primary attention given to the new international statistical classification of diseases injuries and causes of death Appropriate questions will be prepared for submission to national committees on health statistics Dr Crosby is with the U S Veterans Administration and the U S Public Health Service. In addition to his hospital appointment he is chairman of the Council on Professional Practice of the American Hospital Association

American Academy of Tuberculosis Physicians Meeting—The annual meeting of this academy will be held at the Palace Hotel, San Francisco, June 24 The program is as follows

Jacob W Cutler, Philadelphia Importance of Extrapleural Pneumothorax in the Collapse Therapy of Pulmonary Tuberculosis
Paul C Samson Oakland Calif Decortication in Pulmonary Tuberculosis
Ralph Adams Woodbury Tenn Resection in Pulmonary Tuberculosis
Joseph M Goorwitch Los Angeles Extrapleural Plombage
C Richard Smith Los Angeles Bacteriology Versus Roentgenology in the Diagnosis and Treatment of Pulmonary Tuberculosis
Samuel E Hughes Jr Downey Ill Pneumoperitoneum in the Treatment of Pulmonary Tuberculosis
Hamilton H Anderson San Francisco Influence of Antituberculous Agents on Oxygen Consumption of *Mycobacteria*
Emil Bogen Olive View, Calif Effect of Neomycin in Tuberculosis in Culture Mediums in Guinea Pigs and in Patients
David Salkin San Fernando Calif Empyema Following Closed Intrapleural Pneumonolysis
Raymond H Pigdon Galveston Texas Necrosis of the Basal Nuclei in Cases of Tuberculous Meningitis Treated with Streptomycin
J P Myles Black Olive View Calif Clinical Evaluation of the Use of Paraaminosalicylic Acid (PAS) with Streptomycin
Elliott P Smart Murphys Calif Present Status of over 10 Years' Experience with Extrapleural Pneumothorax
Maurice C Buckles Columbus Ohio Bronchiectasis and Tuberculous Bronchitis
Harry J Corper Denver Growth of Tubercle Bacilli at Suboptimum Temperatures

Science Writers Awards—For the best writing on medical science and public health awards of $500 and statuettes of the Winged Victory of Samothrace were presented at the dinner of the National Association of Science Writers in April The winners were Herbert and Dixie Leppert Yahraes in the magazine field for their article in *Collier's* 'Our Daughter is an Epileptic' and William L Laurence of the *New York Times* in the newspaper field for his work on the development of cortisone and pituitary adrenocorticotropic hormone (ACTH) These were the first Albert and Mary Lasker Awards made in the field of journalism Previous winners had been medical researchers and public health proponents The Nieman Foundation for Journalism administered the awards Mr and Mrs Yahraes are veteran newspaper and free lance writers They are cited 'for their achievement in most usefully disseminating the fruits of medical research for appealing powerfully to the public conscience by stressing the opportunity and responsibility of the community toward the health of individual sufferers for skilful and poignant narrative and for their courage in setting aside personal reticence to make their experience a challenge and a light to their fellow-men' Mr Laurence was cited 'for his alertness and instant grasp in presenting to the public these discoveries which rank among the most significant of the year for his initiative in using his own research as a reporter to furnish a valuable lead in the further development of cortisone for his clarity of perception and of style and for his disciplined judgment which insisted upon accuracy and restraint in dealing with the most urgent of subjects'

FOREIGN

British Radiographers Conference—The Society of Radiographers which is affiliated with the British Institute of Radiology in London will hold its fourth annual conference in Edinburgh June 22-24 at the North British Station Hotel The following lectures will be given Some Aspects of Radiography and Rheumatism, Recent Advances in Apparatus, Value of Supplementary Views in Radiography, Aids to Radiographic Definition and Radiological Recognition of the Spread of Cancer

Courses in Occupational Health and Rehabilitation—Roffey Park Rehabilitation Centre, Horsham, Sussex, England, is offering two international courses on Occupational Health and Rehabilitation July 17-24 and August 14-21 Industrial physicians, personnel managers, welfare workers and senior nursing administrators are welcome The course is arranged to provide an understanding of individual and group health based on current psychologic principles Adequate time is available for informal discussions Visitors are housed in an attractive licensed residential club in the grounds Applications for vacancies should be made to the Secretary, Roffey Park, Horsham Sussex, England, stating the preferred week The fee which includes tuition and full residence, is $30

Outbreak of Cholera in India—Information has reached the World Health Organization's Headquarters in Geneva, Switzerland, that cholera cases and deaths have been steadily rising in Calcutta, India, since the early part of March In that city 3 311 cholera cases with 1,233 deaths were reported from January 1 to April 13 This appears to be the most serious outbreak of cholera in India since 1943, when 7,007 cases occurred in Calcutta Normally, the World Health Organization explained the curve of incidence falls off sharply during July and August with the coming of heavy rains During the past thirty years the annual number of cholera cases in Calcutta has never fallen below 1,800 Apart from the seasonal rise in incidence the influx of refugees appears to be a factor in the present outbreak.

International Training Center for Anesthetists—The first international center for study of modern technics of anesthesiology opened May 3 at the Rigshospital in Copenhagen as a cooperative enterprise of the Faculty of Medicine in Copenhagen University and the World Health Organization The center will provide a one year postgraduate course for physicians and surgeons of Scandinavian and other European countries in modern developments in anesthesiology The course will open with two American specialists acting as senior instructors and advisers They are Dr Stuart C Cullen State University of Iowa College of Medicine, Iowa City and Dr Ralph M Waters, retired professor of anesthesia, University of Wisconsin Madison A British specialist, Dr Phyllis Edwards, and several Danish doctors will be junior instructors WHO will provide supplies and fellowships for 21 medical graduates from Sweden, Norway, Finland, Iceland Austria, Yugoslavia and Denmark

Tuberculosis Centers in Southeast Asia—Plans have been made for establishment by WHO and the United Nations International Children's Emergency Fund of three tuberculosis centers in India to be followed by other centers in Burma, Ceylon and Thailand WHO has appointed Dr Edmond McWeeney of Dublin as tuberculosis adviser for the region The Indian Health Ministry grants to the Tuberculosis Association are for the construction of centers Meanwhile, plans are proceeding for development of existing antituberculosis centers at Colombo and Rangoon Primary functions of the WHO UNICEF tuberculosis center will be training of medical and technical personnel in modern methods of prevention, diagnosis and treatment. Each center will have as its nucleus a clinic with a small number of beds and a laboratory and a mobile dispensary designed to serve rural areas and equipped to give accurate diagnosis Supplies and part of the international staff will be furnished by UNICEF, and technical guidance will be provided by WHO

Marriages

Luther Randolph Stinson Scottsville, Va., to Miss Arleen Foushee Boyce of Howardsville, March 24

James Gordon Halford Jr., Johnston S C, to Miss Marjorie Ruth Gault in Greenwood April 14

Edgar Coley Garrard Catawha Sanatorium Va to Miss Mary Elizabeth Slater in Salem April 14

John Marion Babich to Dr. Marie Elizabeth Dugas both of Sacramento Calif, April 15

Deaths

James Millington Brown ⊕ Medical Director, Captain, U S Navy, retired, Long Beach, Calif, born in 1894, St Louis University School of Medicine, 1916, entered the U S Navy on Oct 19, 1917, after serving in World War I began practice in St Louis, where he was assistant professor of clinical pediatrics at his alma mater, visiting physician at the Missouri Pacific Hospital from 1920 to 1924, assistant pediatrician to St Mary's Group of Hospitals from 1925 to 1927 and from 1933 to 1942, when he became associate pediatrician and assistant pediatrician to St John's Hospital, member of the American Medical Association and Missouri State Medical Association, began active duty in 1940, served aboard the U S S *Chandeleur*, during World War II in the Pacific, in 1945 became senior medical officer at the Naval Air Station at Lambert-St Louis Municipal Airport, where he remained until 1947, when he was assigned to the U S Naval Hospital in San Diego, retired Oct 1, 1949, died March 22, aged 56, of heart disease

John Francis Kenney, Pawtucket, R I, born in New Bedford, Mass, Jan 5, 1890, Tufts College Medical School, Boston 1913, specialist certified by the American Board of Internal Medicine, fellow of the American College of Physicians, member of the American Association of Industrial Physicians and Surgeons and the American Medical Association, past president of the Rhode Island Medical Society and the New England Conference of Industrial Physicians, member of the Board of Medical Examiners in the Basic Sciences, affiliated with Memorial Hospital, on the staff of the St Joseph's Hospital, consulting physician, Lying-In Hospital, Jane Brown Memorial Hospital and the Rhode Island Hospital, all in Providence, consulting physician at the Sturdy Memorial Hospital in Attleboro, Mass, State Sanatorium, Wallum Lake and State Hospital, Howard, died March 20, aged 60, of coronary thrombosis

Ray Bardwell McCarty ⊕ Riverside, Calif, born in Corona, Calif, Sept 1, 1899, University of Pennsylvania School of Medicine, Philadelphia, 1925, received the degree of M S in surgery from the University of Minnesota Graduate School, Minneapolis-Rochester, 1930, specialist certified by the American Board of Surgery, member of the Pacific Coast Surgical Association, fellow of the American College of Surgeons, on Oct 1, 1927 became a fellow in surgery at the Mayo Foundation in Rochester, Minn, where he was resident surgeon at the Colonial Hospital from October 1930 to October 1931, served during World War II, affiliated with Riverside Community and Riverside County hospitals, died April 15, aged 50, of cardiac insufficiency

David Washburn Wells, Newton, Mass, born in West Newton, Mass, in 1862, Boston University School of Medicine, 1897, professor emeritus of ophthalmology at his alma mater, specialist certified by the American Board of Ophthalmology, member of the American Academy of Ophthalmology and Otolaryngology, American Medical Association and the New England Ophthalmological Society, fellow of the American College of Surgeons, past president of the New England Ophthalmological Society, for many years affiliated with Massachusetts Memorial Hospitals in Boston and Newton Hospital, author of "Psychology Applied to Medicine," 1907, and "Stereoscopic Ophthalmology", died March 4, aged 87, of coronary thrombosis

Herbert Noble Vermilye ⊕ Forest Hills, N Y, born in Anniston, Ala, Nov 16, 1887, Columbia University College of Physicians and Surgeons, New York, 1914, specialist certified by the American Board of Internal Medicine, fellow of the American College of Physicians and the American College of Allergists, member of the Harvey Society, Omega Society, New York Rheumatism Association and New York Psychiatric Association, served during World War I with the Presbyterian Hospital Medical Unit in France, attaining the rank of major, formerly affiliated with Presbyterian Hospital and Fifth Avenue Hospital, died April 12, aged 62, of heart disease

William Anderson, Price, Utah, College of Physicians and Surgeons, Baltimore, 1910, died March 29, aged 75, of carcinoma

William Sidney Austin ⊕ Knoxville, Tenn, University of Pennsylvania Department of Medicine, Philadelphia, 1899, past president of the Knox County Medical Society, at one time a member of the city board of education, affiliated with St Mary's, Knoxville General and Fort Sanders hospitals, associate surgeon for the Southern Railway and the Louisville and Nashville Railroad, died April 10, aged 74, of leukemia

Walter Thomas Bailey, Indianapolis, Meharry Medical College, Nashville, Tenn, 1910, died in Marion, Ind, February 10, aged 64, of cerebral hemorrhage and hypertension

Edward L Beal, Republic, Mo, Jefferson Medical College of Philadelphia, 1888, died in the Springfield Baptist Hospital, Springfield, March 25, aged 86, of bronchopneumonia and carcinoma of the prostate

Joseph Howard Beard ⊕ Champaign, Ill, Johns Hopkins University School of Medicine, Baltimore, 1912, specialist certified by the American Board of Preventive Medicine and Public Health, member of the American Public Health Association, professor of hygiene, organized and became director of the university health service, university health officer and medical director of the university retirement system at the University of Illinois, died in McKinley Hospital, Urbana, April 5, aged 67, of coronary occlusion

John A Bentley, Allen, Okla (licensed in Oklahoma under the Act of 1908), died February 27, aged 77, of cerebral hemorrhage

David Franklin Berry, Indianapolis, Central College of Physicians and Surgeons, Indianapolis, 1900, member of the American Medical Association and the American Academy of Ophthalmology and Otolaryngology, specialist certified by the American Board of Otolaryngology, affiliated with City and Methodist hospitals, died March 16, aged 75, of coronary occlusion

Irvin Edwin Booher ⊕ Connersville, Ind, University of Louisville (Ky) Medical Department, 1913, past president of Fayette-Franklin Counties Medical Society, served during World War I, secretary of the board of health of Connersville, first president of the Fayette Memorial Hospital medical staff, died March 15, aged 67, of coronary occlusion

William Roscoe Boone, Berkeley, Calif, Oakland College of Medicine and Surgery, 1912, member of the American Medical Association, affiliated with Alta Bates and Herrick Memorial hospitals, died March 21, aged 65, of coronary occlusion

Frank Joseph Briglia ⊕ Philadelphia, Jefferson Medical College of Philadelphia, 1928, member of the American Academy of Ophthalmology and Otolaryngology, specialist certified by the American Board of Otolaryngology, served during World War II, instructor in laryngology at the University of Pennsylvania Graduate School of Medicine, affiliated with the Graduate Hospital of the University of Pennsylvania, died April 5, aged 46, of heart disease

Andrew Morton Carr Jr, Minot, N D, Rush Medical College, Chicago, 1915, member of the American Medical Association, served overseas during World War I, formerly on the staff of Trinity Hospital, died March 15, aged 59, of heart disease

Clarence Thomas Carr, La Grange, Ill, Hering Medical College, Chicago, 1902, member of the American Medical Association, for many years mayor of Somonauk, affiliated with the Hinsdale (Ill) Sanitarium and Hospital, died March 28, aged 72, of acute coronary disease

John Godfry Chaloupka, Omaha, Creighton University School of Medicine, Omaha, 1922, served on the staffs of St Joseph's and St Catherine's hospitals, died April 4, aged 53, of heart disease

James Ryle Coffey, New Haven, Conn, Yale University School of Medicine, New Haven, 1907, member of the American Medical Association, served during World War I, died March 31, aged 68, of cerebral hemorrhage

Henri Coutard, Colorado Springs, Colo, Universite de Paris Faculte de Medecine, France, 1902, one of the pioneers in research in radium and formerly director of x-ray therapy, Curie Institute, Paris, France, in 1937 joined the Chicago Tumor Institute serving until 1941 when he became chief of research, Glockner Penrose Hospital, known for his work on x-rays and a special method of treatment, the "Coutard method", died in the LeMans Central Hospital in France March 16, aged 73, of cerebrovascular disease

Henry Hallam Covell, Bernardsville, N J, Harvard Medical School, Boston, 1892, formerly practiced in Rochester, N Y, where he was a member of the board of health and the Monroe County Milk Commission, died April 7, aged 87, of cerebral hemorrhage

Robert Ronayne Culbert, Boston, University of Vermont College of Medicine, Burlington, 1891, formerly affiliated with St. Elizabeth Hospital and the Boston Dispensary, died March 23, aged 82, of heart disease

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⊕ Indicates Fellow of the American Medical Association

John Peter Denby, Carlinville, Ill , Marion-Sims College of Medicine St. Louis, 1898, served as president and treasurer of the Illinois Tuberculosis Association, president and director of the Farmers and Merchants Bank, died recently, aged 78, of heart disease

DeWitt Clarence Dever, Seattle, Northwestern University Medical School, Chicago, 1928, member of the American Medical Association, died March 23 aged 52, of coronary heart disease and arteriosclerosis

Homer Odell Dolley ⊕ Bloomington, Ill , Northwestern University Medical School, Chicago, 1929, member of the American Association of Industrial Physicians and Surgeons, past president of the McLean County Medical Society, on the courtesy staff of Brokaw Hospital in Normal, died March 25, aged 48, of coronary disease.

Paul Lowell Douglas, Pursglove, W Va Washington University School of Medicine St Louis, 1939, member of the American Medical Association served during World War II, died April 17, aged 40, as the result of bullet wounds alleged to have been inflicted by a former patient

John Henry Duncan, Killbuck, Ohio, Ohio Medical University, Columbus, 1904, died in the Holmes County Joel E Pomerene Memorial Hospital, Millersburg March 11, aged 72, of injuries received in an automobile accident

Eugene Harold Eising ⊕ New York, Columbia University College of Physicians and Surgeons, New York, 1898, fellow of the American College of Surgeons, affiliated with Sloane Hospital for Women, Sydenham Hospital, Hospital of the Rockefeller Institute for Medical Research, Hospital for Joint Diseases and Mount Sinai Hospital, where he died March 29, aged 76 of heart disease

Albert Henry Evans, Guilford, N Y , Syracuse University College of Medicine, 1902, member of the American Medical Association, past president of the Chenango County Medical Society, for many years served the town of Guilford as health officer and as a member of the school board, affiliated with Chenango Memorial Hospital, Norwich, where he died April 4, aged 76, of chronic congestive myocardial failure

Arthur Louis Fehsenfeld, Trappe, Md , University of Maryland School of Medicine, Baltimore, 1909 member of the American Medical Association, served on the staff of the Maryland General Hospital in Baltimore, died in the Cambridge Maryland Hospital in Cambridge, March 31, aged 63, of myocardial failure

H Ward Fisher, Wilkes Barre, Pa , Hahnemann Medical College and Hospital of Philadelphia 1911, member of the American Medical Association affiliated with the Wyoming Valley Homeopathic Hospital died in Hahnemann Hospital, Philadelphia March 14 aged 64, of uremia

Desider Foldes ⊕ Cleveland, Magyar Királyi Pázmany Petrus Tudományegyetem Orvosi Fakultasa, Budapest Hungary, 1905, fellow of the American College of Surgeons on the staff of St John's Hospital where he died March 27, aged 69, of carcinoma of the stomach

Arthur Morris Gabriel ⊕ New York, Vereinigten Friedrichs Universitat Medizinische Fakultat, Halle-Wittenberg, Prussia Germany 1923, affiliated with Metropolitan and Jewish Memorial hospitals, died April 23, aged 52, of acute infectious hepatitis

Arnold William Garlitz, Dayton, Ohio National University of Arts and Sciences Medical Department St Louis, 1913 affiliated with Veterans Administration hospitals at various places, died in the Veterans Administration Hospital March 30 aged 76 of posterior myocardial infarction

Zeffa Carl Hagan, Union Miss St Louis College of Physicians and Surgeons 1905, member of the American Medical Association, served during World War I county health officer, affiliated with Laird's Hospital, died March 21, aged 70 of coronary occlusion

Howard Cyrus Harper ⊕ New Castle Pa Jefferson Medical College of Philadelphia 1904, past president of the Lawrence County Medical Society, veteran of the Spanish-American War and World War I, on the staff of Jameson Memorial Hospital, died March 6 aged 74, of cerebral hemorrhage and coronary heart disease.

Carl Floyd Hartmann ⊕ Wauseon, Ohio, Rush Medical College Chicago 1909 past president of the Fulton County Medical Society died in St Vincent s Hospital, Toledo, April 18 aged 66, of coronary thrombosis

William R Haynie, Belton S C., University of Nashville (Tenn) Medical Department, 1896, member of the American Medical Association, died March 6, aged 79, of chronic nephritis

William C Heaston ⊕ McPherson, Kan , Ensworth Medical College, St Joseph, Mo , 1908, fellow of the American College of Surgeons, past president of the McPherson County Medical Society, on the staff of McPherson County Hospital, where he died March 4, aged 77, of cerebral hemorrhage.

Edward Albert Herr ⊕ Cheshire, Conn , University of Vermont College of Medicine, Burlington, 1909, fellow of the American College of Surgeons, served during World War I, consulting gynecologist at St Mary's Hospital in Waterbury, where he died March 18, aged 67, of coronary occlusion

Clarence Payne Howley ⊕ New York, Columbia University College of Physicians and Surgeons, New York, 1918, fellow of the American College of Surgeons, affiliated with Harlem Hospital and St Vincent's Hospital, died April 3, aged 58, of acute coronary occlusion

Fred T Hughes, Gurdon, Ark (licensed in Arkansas in 1903) died recently, aged 71

Jacob Sleeper Kelley ⊕ Providence, R I , Harvard Medical School Boston, 1904, specialist certified by the American Board of Radiology, member of the New England Roentgen Ray Society and the Radiological Society of North America, served in France during World War I, until 1940 active in the Rhode Island National Guard, associated with the Charles V Chapin, Roger Williams General and Providence Lying-In hospitals and the Veterans Administration hospital, where he died March 18, aged 70, of carcinoma

Joseph Edward Knighton ⊕ Shreveport, La , University of Nashville (Tenn) Medical Department, 1899, specialist certified by the American Board of Internal Medicine, fellow of the American College of Physicians, past president of the Louisiana State Medical Society, formerly vice president of the Southern Medical Association, for many years member of the state board of medical examiners, affiliated with the Tri-State Hospital, served on the staffs of the Shreveport Charity Hospital and the Pines Sanatorium, died March 9, aged 79

Benjamin Franklin Kuhn, Pierceton, Ind , Bennett Medical College, Chicago, 1897, member of the American Medical Association, died April 4, aged 81, of coronary thrombosis

Kenneth Parker Lancefield, Portland Ore , University of Oregon Medical School, Portland, 1925, member of the American Medical Association, on the staff of the Portland Sanitarium and Hospital, died March 27, aged 54

Peter J Latz ⊕ Chicago, Dunham Medical College, Chicago, 1896, Jenner Medical College, Chicago, 1899, affiliated with St Elizabeth Hospital and Alexian Brothers Hospital where he died April 14 aged 90, of arteriosclerosis

Charles Joseph Leverty, Bridgeport, Conn , University and Bellevue Hospital Medical College New York, 1901, member of the American Medical Association, served during World War I, affiliated with St Vincent's Hospital, died March 21, aged 72, of adenocarcinoma of the large bowel

Rolla Ernest Little, East St Louis, Ill , St Louis University School of Medicine, 1906, member of the American Medical Association, affiliated with Christian Welfare Hospital and St Mary s Hospital, where he died April 1, aged 70, of coronary occlusion cerebral sclerosis and osteoarthritis

Josiah G McDonald, Urich, Mo , University Medical College of Kansas City, 1901, served during World War I, died March 31 aged 75, of coronary thrombosis

Olga McNeile ⊕ Los Angeles, Los Angeles Department of College of Medicine University of California, 1910, formerly police surgeon, died April 2, aged 67

Lora Larason Marriott, Newark, Ohio, Physio-Medical College of Indiana, Indianapolis, 1896, formerly county coroner, served during World War I, for many years affiliated with the Veterans Administration, died March 25, aged 80, of arteriosclerosis

Alfred John Metscher, Enid, Okla Washington University School of Medicine, St. Louis 1927, member of the American Medical Association, died March 14, aged 55, of coronary disease

Lawrence Delano Miller ⊕ Toledo Ohio, Eclectic Medical Institute, Cincinnati, 1915, affiliated with Toledo State, Toledo and Flower hospitals, served during World War I, died March 18 aged 57

William Theodore Moke, *Pittsburgh*, Western Pe
vania Medical College, Pittsburgh, 1 d in Western
sylvania Hospital April 4, aged

Vernon Hurschel Musick ⊕ Oklahoma City, Northwestern University Medical School, Chicago, 1927, assistant professor of medicine at the University of Oklahoma School of Medicine, fellow of the American College of Physicians, served during World War I, died March 26, aged 49, of coronary thrombosis

Jesse D Neel, Ecru, Miss, (licensed in Mississippi in 1891), member of the American Medical Association, died March 10, aged 91

Cyrus F Newcomb, Champaign Ill, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1904, member of the American Medical Association, formerly secretary of the Champaign County Medical Society, served as vice president of the Illinois State Medical Society, health officer of Champaign-Urbana, affiliated with Burnham City Hospital, where he died April 4, aged 70, of heart disease

John Quincy Newell, Oklahoma City, Barnes Medical College, St Louis, 1897, formerly state senator U S marshal for the western district and warden of the state penitentiary, died February 10, aged 77, of arteriosclerotic heart disease

Andrew Walsh O'Malley, Clarks Summit, Pa, Illinois Medical College, Chicago, 1908, member of the American Medical Association and the American Psychiatric Association, clinical director of Clarks Summit State Hospital, died March 11, aged 66, of coronary occlusion

Bennett Roland Parker ⊕ Chicago, Rush Medical College, Chicago, 1916, fellow of the American College of Surgeons, affiliated with Illinois Central Hospital served during World War I, entered the Mayo Foundation in Rochester, Minn, as a fellow in surgery in October 1919 and left in April 1926, died April 15, aged 61

Florence Pettus, New York, Washington University School of Medicine, St Louis, 1936, member of the American Medical Association, affiliated with Roosevelt Hospital, died April 3, aged 40, of third degree burns and suffocation as the result of a fire of undetermined origin in her apartment

John Linton Phythian, Newport, Ky, Kentucky School of Medicine, Louisville, 1891, member of the American Medical Association, fellow the American College of Surgeons, president of the board of trustees of Speers Memorial Hospital, Dayton, where he died April 3, aged 80, of arteriosclerotic heart disease

John Ransom Plank ⊕ Steelton, Pa, Jefferson Medical College of Philadelphia, 1896, school physician, died April 1, aged 82, of coronary thrombosis

Frank Kenneth Pomeroy, Fresno, Calif, Columbia University College of Physicians and Surgeons, New York, 1914, member of the American Medical Association, served during World War I, regimental surgeon in the 185th Infantry of the California National Guard for many years, formerly member of the city board of health, on the staff of St Agnes' and Community hospitals, died April 1, aged 64, of coronary thrombosis

William Roy Richards ⊕ Calhoun, Ga, Atlanta School of Medicine, 1913, member of the American Medical Association, twice mayor of Calhoun, at one time member of the city council, served during World War I, formerly health commissioner of Greene County in Greensboro, died in the Veterans Administration Hospital, Atlanta, March 23, aged 59

Luther Eldridge Roper, Hollywood, Fla, Atlanta Medical College, 1893, died in Broward General Hospital, Fort Lauderdale, March 15, aged 79, of cardiac decompensation

Donald Gordon Russell, Seattle, Queen's University Faculty of Medicine, Kingston, Ontario, Canada, 1885, died April 1, aged 87

Henry Richard Schreiber ⊕ Washington, D C, Georgetown University School of Medicine, Washington, 1907, professor of clinical medicine at his alma mater, past president of the Medical Society of the District of Columbia, on the staff of Providence Hospital, died April 9, aged 65, of coronary occlusion

William Thomas Shipe, Middletown, Ohio, Baltimore Medical College, 1894, served during World War I, died in the Veterans Administration Hospital, Augusta, March 13, aged 83, of pulmonary edema, cerebral vascular accident and arteriosclerosis

John Charles Siggins, North Hills, Pa, University of Pennsylvania Department of Medicine, Philadelphia, 1901, served during World War I, formerly on the staffs of Philadelphia General and Wills Eye hospitals in Philadelphia, until his retirement chief oculist with the Pennsylvania Railroad, died March 29, aged 70, of suffocation as the result of a fire in the Belle Vista Sanatorium in Philadelphia

Grace Stevens, Northampton, Mass, Boston University School of Medicine, 1901, affiliated with the Cooley Dickinson Hospital, where she died March 20, aged 81, of coronary thrombosis

James Albert Stone, Little River, S C, University of Maryland School of Medicine, Baltimore, 1905, died March 24, aged 71, of cerebral hemorrhage

Joseph John T Sweeney, Toledo, Ohio, Jefferson Medical College of Philadelphia, 1911, member of the American Medical Association, affiliated with Mercy Hospital and St Vincent's Hospital, where he died March 16, aged 65

Vincent Michael Timm, Metropolis, Ill, Chicago Medical School, 1937, member of the American Medical Association, died recently, aged 50, of gastric ulcer and hemorrhage.

Frank Paige Todd, Danielson, Conn, Boston University School of Medicine, 1889, member of the American Medical Association, served during World War I, in 1948 the Danielson Chamber of Commerce gave him its first annual Civic Achievement Award because he had served the community for more than a half century as a country doctor, formerly affiliated with the Day Kimball Hospital in Putnam, died March 15, aged 86, of angina pectoris

John Walker, Lynchburg, Va, University of Maryland School of Medicine, Baltimore, 1891, member of the American Medical Association, for many years surgeon for the Chesapeake and Ohio Railway, served on the staff of the Memorial Hospital, where he died March 27, aged 82

Bernard Weiss, Boston, Tufts College Medical School, Boston, 1916, member of the American Medical Association, died in Peter Bent Brigham Hospital, Boston, March 27, aged 62, of coronary thrombosis

Joseph Earl Wharton, Santa Ana, Calif, Ohio State University College of Medicine, Columbus, 1940, member of the American Medical Association, served overseas during World War II, on the staff of St Joseph Hospital in Orange, died in Los Angeles April 4, aged 35, of fracture of the femur with complications

Lewis Butler Whiting, Baltimore, Johns Hopkins University School of Medicine, Baltimore, 1934, member of the American Medical Association, died January 26, aged 44

Thomas Robert Whitmarsh, Stephenson, Mich, Michigan College of Medicine and Surgery, Detroit, 1897, specialist certified by the American Board of Otolaryngology, fellow of the American College of Surgeons, served during World War I, died in the Veterans Administration Hospital, Woods, March 26, aged 77, of gangrene of the right lower extremity

Arthur Farrington Wilhelm, Raubsville, Pa, Medico-Chirurgical College of Philadelphia, 1909, died April 8, aged 71, of heart disease

Gerard Thomas Willke ⊕ Cincinnati, University of Cincinnati College of Medicine, 1921, affiliated with Deaconess Hospital, St Mary Hospital and the Good Samaritan Hospital, where he died April 3, aged 53

Leo Joseph Wojczynski ⊕ Philadelphia Jefferson Medical College of Philadelphia, 1911, affiliated with St Mary's and Nazareth hospitals, died April 18, aged 63

Clifford Harvey Wood, Glendora, Calif, University of Southern California College of Medicine, Los Angeles, 1905, member of the American Medical Association, served on the staff of the Pomona Valley Community Hospital in Pomona, died March 30, aged 70

William Hagood Woods, Myrtle Beach, S C, University of Nashville (Tenn) Medical Department, 1905, member of the American Medical Association, died March 31, aged 69

Stanley Worden ⊕ Dover, Del, Johns Hopkins University School of Medicine, Baltimore, 1926, formerly secretary of the Delaware State Board of Health, on the staff of Kent General Hospital, died in Pittsburgh April 11, aged 54, of coronary occlusion

Harold Edson Wright ⊕ Baltimore, University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1919, specialist certified by the American Board of Radiology, member of the American Gastro-Enterological Association, Radiological Society of North America and the American College of Radiology, fellow of the American College of Physicians, affiliated with the South Baltimore General Hospital, died January 16, aged 56

John Charles Zuercher ⊕ Milwaukee, St Louis University School of Medicine, 1912, died in the Mayo Clinic, Rochester, Minn, March 16, aged 64, of carcinoma

Foreign Letters

ITALY

(From a Regular Correspondent)

FLORENCE, March 20 1950

Congress of Obstetrics and Gynecology

The fortieth National Congress of the Italian Society of Obstetrics and Gynecology was held at the University of Palermo in Sicily The chairman of the organization committee was Prof Salvatore Scaglione, director of the university clinic. The congress was attended by the directors of almost all Italian university clinics and by numerous specialists from Italian hospitals Also present were some professors of the medical faculties of Paris and Vienna

Prof Giovanni Paroli of Perugia presented a report on conduct of labor with regard to kinetics of the uterus

Considering the uterus as being divided in two segments, the upper and the lower, which are equipped with different neuromotor systems, he believes that, in the light of modern knowledge, the adrenergic system would be substantially the motor of the upper segment and the inhibitor of the lower segment, while the cholinergic system would be the inhibitor of the upper segment and the motor of the lower one The uterine muscular cell would be provided with both specific receptors, with prevalence of the adrenergic in the upper segment and the cholinergic in the lower one During pregnancy the upper segment is in a state of tonic adaptation, while during labor contractions take place These contractions have an ascending curve intermittently broken by intervals of almost horizontal direction During these intervals, however, the uterus does not return to he state of tonic adaptation but remains in a state of basal contraction between the two phases Inverting the terms, the same may be said of the lower segment

Among the intrinsic factors which may influence the kinetics of the uterus the estrogens are acting in an excitomotory sense and the luteinic hormones exert an inhibitory action, while the action of histamine still remains obscure The extrinsic factors which influence uterine contractions may have either a stimulating or an inhibitory action Among those with stimulating action are the ergot derivatives sparteine sulfate, some digitalis derivatives and quinine in small doses Sodium beta-glycerophosphate is first in order among the factors with an inhibitory action on uterine contractions

With regard to the kinetics of the uterus, primary inertia originates from abnormal or insufficient development of the uterus or from a deficiency of the necessary elements for a normal establishment of the contractions Therapy should therefore be directed particularly to increase the excitability of the muscular elements through the use of estrogens small quantities of quinine, posterior pituitary hormone and derivatives of ergot The secondary inertia results principally from muscular fatigue combined with psychic inhibition and hyperalgesia Therapy should consist principally in restoring muscle energy by administration of dextrose, insulin thiamine hydro chloride and ascorbic acid according to individual needs For hyperkinesia of the upper segment the administration of sympathicolytic drugs is useful while for hyperkinesia of the lower segment therapy should consist principally of parasympathicolytic drugs the local application of which may be preferred The condition of total spasticity of the uterus should be treated by ample administration of muscular sedatives

Analgesia in Labor

Before Professor Scaglione discussed the second subject a legislative proposal was discussed in the presence of Professor Cotellessa High Commissioner of Hygiene and Public Health This law would provide for the training of obstetricians in the administration of analgesics to parturient women and for obstetric clinics to be provided with analgesic equipment and would establish the right of women in confinement (in obstetric clinics) to request analgesia This law, if approved by the Parliament, would constitute an innovation in Italy

Professor Scaglione recalled that in 1939 the Italian Society of Obstetrics and Gynecology dealt with the subject of painless childbirth Professor Dallera presented a report and recommended caution in the use of barbiturates while advocating inhalation of nitrous oxide and parenteral administration of morphine derivatives In 1948 the Academy of Sciences of Udine was concerned with this subject and the speaker, Debiasi, concluded that all methods known at present were unsatisfactory

In a recent publication, Repetti concluded, from his experience in the use of many drugs that during the period of expulsion the use of nitrous oxide, cyclopropane and trichlorethylene is excellent, but that these anesthetics require constant supervision by the physician According to Repetti none of the methods is perfect for analgesia for the entire duration of labor

Professor Scaglione surveyed the American literature on the subject recalling that analgesia during childbirth is accomplished particularly with cyclopropane and ethyl ether while there is a tendency to abandon chloroform and nitrous oxide. Vinyl ether is not much used. Trichloroethylene does not always have an analgesic response and may produce postpartum hemorrhage He stated that there is at present no ideal method for rendering childbirth painless and that inhalation is at present the most practical method but that it must always be entrusted to a physician

Gynecologic Physiopathology

Professor Martinolli discussed the gynecologic physiopathology in all the successive phases of development until puberty He began with a review of the anatomic knowledge concerning the development of the sex organs the pelvis and the mammary glands during the prenatal period He discussed also the postnatal phenomena known as the genital crisis of the newborn The speaker stressed functional anomalies of the genitalia, such as sexual precocity, premature puberty and the genital diseases of disturbed development Of particular intricacy is the problem of prepuberal pathology of traumatic origin The speaker stressed that the practitioner should abandon the concept that the female genitalia do not require attention before puberty and he should not treat disturbances related to the genital region without making a gynecologic examination

DENMARK

(From a Special Correspondent)

COPENHAGEN, April 23, 1950

A Salt-Free Diet for Heart Disease

The treatment of heart disease with a salt-free diet dates back many years But a study of the subject by Dr A Levin Nielsen, Dr P Bechgaard and Dr H O Bang published in the *Journal of the Danish Medical Association* suggests that this treatment has not been used enough In the past many Danish hospitals have been satisfied with a diet containing at least 3 Gm of sodium chloride daily Now an attempt has been made to reduce this amount to less than 1 Gm daily, a diet which of course requires the services of a skilled dietitian Sixty-four patients were selected for this apparently rather heroic treatment Their ages ranged from 40 to 84 the average age being 62 All presented signs of cardiac insufficiency, with edema and/or cyanosis congestion of the lungs (with roentgenographically verified pulmonary stasis) and attacks of dyspnea and edema of the lungs In 4 of the worst cases an attempt was first made in hospital to treat with such standard remedies as rest in bed digitalis and diuretics It was only after they had failed that the salt-free diet was instituted The results in these 4 cases are described as almost dramatic' after only a few days

Although many of the patients complained of the monotony of the diet, none showed signs of salt deficiency as indicated by lassitude and weakness The most impressive response to this treatment was made by a woman, aged 64, who lost 27 6 Kg in two months The patients were followed for three to 18 months after discharge from hospital, and those who had kept to a salt-free diet after discharge were compared with those who had not done so Among 31 who had adhered to this diet there were 27 who were as fit as they had been on discharge One was worse, and 3 had died Among the 19 who had not adhered to their diet there were 3 who were as well as they had been on discharge, 11 were worse and 5 had died This evidence is not convincing statistically, but the detailed account given of the 4 most serious cases is interesting

Epidemic Diseases in 1949

The official figures for the incidence of epidemic diseases in Denmark in 1949 are now published, they are alternately encouraging and depressing The figures for typhoid and paratyphoid B are 19 and 83, respectively, and are encouraging when compared with the previous 40 and 120, respectively But the 148 cases of epidemic cerebrospinal meningitis are discouraging when compared with the prewar 65 The same may be said of acute anterior poliomyelitis with paralysis, 155 as compared with 50 Scarlet fever showed little change from the "calculated normal," the figures being 9,458 and 9,200, respectively But diphtheria seems to be receding, there being only 84 cases as compared with 1,350 This is surely due to a well organized campaign against diphtheria

The figures for the venereal diseases are not cheering, though congenital syphilis shows a fall, 32 as compared with 40 But acquired syphilis was reported in 1,032 cases, as compared with only 515, and gonorrhea in 11,063 cases, as compared with 8,250 Evidently there has not been complete recovery from the wartime wave of venereal disease The incidence of bronchopneumonia was high, with 46,422 cases as compared with 22,500, as was that of croupous pneumonia, with 6,935 cases as compared with 3,700 Acute epidemic hepatitis showed a rise, 8,256 as compared with 2,800 Rheumatic fever showed little change from the "calculated normal"

Tuberculin Studies

In 1932 Dr Thorvald Madsen then head of the Serum Institute in Copenhagen, instituted a series of far reaching epidemiologic studies of tuberculosis in Denmark. These studies, supported by the Rockefeller Foundation, have consisted largely of tuberculin testing Previously it had generally been assumed that it was superfluous to repeat tuberculin tests on persons found to be tuberculin-positive, for this condition was held to be permanent But in 1934 the decision was made to test positive reactors among school children repeatedly Between 1934 and 1936 Dr Per Helweg-Larsen was attached to the Serum Institute, and he has continued his studies of tuberculosis ever since

Dr Helweg-Larsen's latest study, published as a 138 page volume by Rosenkilde and Bagge of Copenhagen in 1950, deals with three medium-sized provincial towns in a part of Denmark which is now free from bovine tuberculosis Special attention was paid to the persons contracting a primary tuberculous infection, whether they were between the ages of 7 and 14 or 15 and 34 Another group consisted of 84 medical students between the ages of 18 and 29 At first several different tuberculin tests were employed, but eventually the Pirquet and Moro tests were abandoned, and only the intracutaneous Mantoux test was employed Among 465 school children who had become tuberculin-positive one to three years earlier, there were as many as 36 (7 7 per cent) who again became tuberculin negative Such reversion was most frequent among the children whose original positive reaction to tuberculin had been slight Some of these reversions may be explained as the result of a faulty interpretation of the tuberculin reactions, but in most cases reversion had actually taken place in the opinion of Dr Helweg-Larsen, who discusses at some length the implications of this curious phenomenon He has been awarded the M D degree for this study

Campaign Against Dental Disease

The large Danish island of Bornholm has since 1937 been the scene of a well organized campaign against dental disease. Reporting on this activity in the *Journal of the Danish Medical Association*, Dr H C Olsen divides his material, consisting of more than 22,000 observations, into two five year periods, 1937-1941 and 1942-1946 Broadly speaking, these were prewar and war periods, respectively Between these two periods the caries-free teeth of school children rose from 7 2 to 11 3 per cent In the period under review growing attention has been paid to school dentistry and to the provision of cod liver oil in the winter months The war reduced the supplies of margarine, coffee, sugar, white bread and cakes and promoted the consumption of butter, milk and rye bread One of Dr Olsen's most curious observations is that the percentage of underweight school children (10 per cent under normal weight) actually fell during most of the war years Since then this percentage has risen, and in 1948-1949 it was 14 6, as compared with only 9 4 in 1943-1944

AUSTRALIA

(From a Regular Correspondent)

BRISBANE, April 26, 1950

Crisis in Blood Transfusion Services

In 1946, the Australian Red Cross Society embarked on a countrywide blood transfusion service as part of its peace time program Until that time, blood transfusion had not been developed on a national basis, although many large hospitals and some doctors had established transfusion services

Prior to 1939 the Red Cross had established donor panels, from which donors could be directed to hospitals that needed blood A few blood banks had been established on a limited basis

The stimulus of war demands in the Southwest Pacific increased the tempo of blood and serum transfusion, and Red Cross donor panels were developed to meet this demand The responsibility for taking and processing of the blood was, however, assumed by the army, which established special medical units for the purpose These operated in the principal cities and, later, the forward base areas This year, Australia's monthly usage of blood and serum approximates 2,650 liters of blood and 700 liters of serum The serum is processed by Red Cross in New South Wales, Queensland and Western Australia Blood received from Red Cross in Victoria, South Australia and Tasmania is processed by the Commonwealth Serum Laboratories in Melbourne, which will, in the future, also fractionate the serum There has been, so far, a low incidence of homologous serum jaundice, and protein hydrolysates have not been widely used

The blood and serum is supplied free of cost to anyone in Australia requiring it, and no service charge is made to cover these costs One result of this is that the expenditure on all Red Cross activities (to service and exservice personnel, convalescent homes, blood transfusion, antituberculosis work, handcrafts and libraries, Junior Red Cross, transport and overseas relief) for the year ended June 1949 was nearly £900,000 ($2,000,000) and the total receipts (including government subsidies) only £500,000 ($1,110,000) Of these costs the blood transfusion services represented one of the largest expenditures Almost all the Red Cross personnel engaged in the transfusion service are salaried, and the unit costs are more than double those of another transfusion service in Australia

For the past four years the Red Cross has financed its peace time program with the help of the large surplus carried over from its war time appeals, but the present services cannot be maintained with the income available It would seem that the virtual monopoly of blood transfusion services on a national scale free of cost to the user is beyond the willingness of the people to support This is in spite of phenomenal export prices for primary products The more extended use of blood and blood products will only further complicate the position Further increase of government subsidies would develop prejudice by the medical profession, who are strenuously opposing the nationalization of medical services

ARGENTINA

(From a Regular Correspondent)

Buenos Aires, April 26, 1950

New Plan for Medical Studies

A new plan for medical studies has been established this year in the medical school of the University of Buenos Aires The course will require seven years for completion, each academic year extending from March 15 to November 15, with a holiday of 15 days The plan provides first year anatomy, histology and embryology, second year, physiology, biochemistry and biophysics third year, pathology, surgical technic, pharmacology, bacteriology and parasitology, fourth year, symptomatology, surgical pathology and radiology, fifth year, internal medicine, surgery, pediatrics, infectious diseases, hygiene, psychiatry, neurology, dermatosyphilography, ophthalmology and otorhinolaryngology, sixth year internal medicine, nutrition, surgery, obstetrics, forensic medicine, toxicology, gynecology and urology, and seventh year, after approving examinations in internal medicine every student will attend for three months each a department of medicine, a surgical department and an obstetric service. Orthopedics, traumatology and phthisiology have been transferred from the ordinary curriculum to the postgraduate school

In theory, each student should attend in the first year, 6 hours of theoretical classes and 15 hours of practical exercises per week and 7 and 17 hours, respectively, in the second year But, because of the large number in each year, the students have to attend the classes in groups and can do practical work only once each week or two

In South American medical schools examinations are more important than practical work Students try to learn only what professors ask for in the examinations and they read special books which may not be the best, in order to be able to answer the questions

Recently the dean of the medical school of Buenos Aires announced a completely new rule from now on there will be examinations every month of the school year Those who do not pass one examination can be examined again within 60 days (in the same subject), i e, they have opportunity of being examined three times a year While they are studying one subject for these periodic examinations, they can attend the practical work of the following year, although they have no time for the study of the subject in which they are doing practical work

When the students take part in the government of the universities, as frequently occurs in South America, the usual request of the students is for more examinations Granting of this request is the best way of winning votes in these schools, where the votes of the students are important for nomination of the members of the councils of the university schools

American Congress of Obstetrics and Gynecology

A large delegation of outstanding Argentine physicians will attend the American Congress of Obstetrics and Gynecology, which will be held in New York, May 14-19 Dr J A Salaber, president of the Argentine Society of Obstetrics and Gynecology, Dr J León, vice president, Dr A Peralta Ramos Jr secretary, Dr G di Paola, treasurer, Dr J C. Ahumada, professor of gynecology and author of a textbook on gynecology, Dr M L Perez, professor of obstetrics and author of a textbook on obstetrics (both these books are widely used in the medical schools of Latin America), and Drs F Merchante, R Chevalier, J Mezzadra and D Nolting form this delegation. Almost all the members of this group have been in Europe, but for more than half of them this will be the first visit to the United States Many of them have completed their training in France or in Germany

Gynecology is well developed in Argentina, especially with regard to pathologic anatomy and surgical technics In the official chair of the Faculty of Medicine the studies have been specially directed toward cancer in women Original research on physiology and endocrinology have not reached the same high level Probably this visit to the United States will greatly aid a better understanding and encourage exchange of knowledge between North American and Argentine specialists in gynecology and obstetrics

BRAZIL

(From a Regular Correspondent)

Rio de Janeiro, April 28, 1950

New Outlook for BCG Immunization

As head of the BCG department of the Ataulpho de Paiva Foundation, an institution which cooperates with the Rio de Janeiro Department of Health in the work of immunization of the infants against tuberculosis, Dr Arlindo de Assis has had much experience in the preparation and use of the immunizing material After importing the original BCG from France in 1927, he began to introduce some changes in the preparation of the vaccine and some improvements in the immunization technic, mainly by increasing the doses, at the same time making experimental studies on tuberculin allergy Dr Assis has recently prepared a critical study on the whole problem, summarizing his experience as well as that of Nascimento, Alvim, Fernandes, Silveira, Rosemberg and Carvalho in "New Perspectives of BCG Immunization"

He states that the various methods of immunizing man with BCG used until now have proved, as a rule, capable of giving some protection against morbidity and mortality from tuberculosis Owing to the different technics used for this immunization throughout the world and the various criteria adopted for ascertaining the degree of specific protection given by BCG, the author believes that the present results of BCG vaccination represent only the minimum of its potential benefits Comparison of BCG immunization against tuberculosis with the vaccinations against other transmissible diseases proves that from the standpoint of the immunologic technic as well as from the public health significance, the former must be considered the least developed The application of BCG vaccination in various countries as an efficient weapon for the fight against tuberculosis, needs, besides attention to doctrinal principles common to all, examination of the infectious as well as the socioeconomic components which guide the epidemiology of tuberculosis in each country The choice of the method for the BCG immunization must be adapted to the local conditions of production, application and control of the specific protection against the forms of tuberculous primary infection and reinfection, in accordance with a plan of progressive work and with the general result which will be obtained through the years.

The experience accumulated in Brazil for more than twenty-two years proves that the oral administration of BCG, when correctly executed, may be able to confer strong protection against the severe forms of child tuberculosis prevalent in this country. Oral immunization with large doses of BCG, repeated monthly during the first six months of life of children exposed to tuberculosis (concurrent vaccination) has resulted, in the last four years, in a decrease of tuberculosis mortality to zero and has reduced the tuberculosis morbidity to 15 per cent among those with roentgen indications of tuberculosis. Observation of more than 400 children subjected to this concurrent vaccination shows evidence of control of the infectious component of tuberculosis epidemiology never before attained with conventional methods of fighting the disease. The use of large oral doses of BCG in tuberculin-positive children and adults was demonstrated to be completely harmless. BCG immunization of more than 300 allergic persons of various ages, since 1946, is beginning to show an inhibiting effect on progressive tuberculosis, as now demonstrated through the reduction of the specific morbidity. At the same time, this immunization has demonstrated a desensitizing effect on the tuberculin allergy caused by natural infection.

These observations prove that BCG vaccination can be applied, as a general measure, to all persons who are free from progressive tuberculosis but who are exposed to active sources of infection.

Chest Survey of School Children and Teachers

During 1949, the Division of School Health of the Rio de Janeiro Department of Education performed a miniature roentgenographic chest survey of a large sample of school children. Of the 35,689 children examined, 340 (0.95 per cent) showed signs of abnormal forms and intensities of shadows. In 192 (0.54 per cent) there were pulmonary abnormalities and in 148 (0.41 per cent) cardiovascular abnormalities. The 340 children were subjected to standard teleradiographic and clinical examination, the results of which have not yet been made public. At the same time, 1,357 teachers were examined, 51 (3.02 per cent) showed pulmonary abnormalities. These figures are not much different from those previously reported by M. de Abreu, A. de Paula and Benedetti, who were pioneers in the use of miniature roentgenograms as a screen test for pulmonary tuberculosis.

An interesting finding of the survey was the exceedingly high rate of cardiovascular abnormalities among teachers. 258 (19.01 per cent) showed such changes, which are being further investigated.

Chronic Myocarditis in American Trypanosomiasis

Dr. R. Chiaverini, assistant professor of medicine at the São Paulo University, published a report on 39 patients with chronic Chagas' disease (American trypanosomiasis), aged 20 to 59 years and all presenting specific myocarditis. The initial symptoms of cardiac trouble were registered in 35 cases, most of the patients experiencing effort dyspnea, edema and palpitation. On the entry to the hospital, the most prominent cardiac symptoms were those of left ventricular failure. The physical examination demonstrated an anomalous seat of the heart beat, great frequency of systolic murmur at the mitral focus with dulness of both sounds, normal or low blood pressure, increased venous pressure and circulatory velocity. Signs of stasis were present in the lungs of 74.3 per cent of the patients and enlarged liver in 84.6 per cent. Roentgenographic examination in 29 cases showed an enlarged heart, especially in the left ventricle, in 27. The electrocardiographic examination of 37 patients demonstrated troubles of the excitoconductor system, 51.3 per cent of ventricular extrasystoles and great frequency of block, mainly of the right bundle (40.5 per cent). Left branch block was present in 10.8 per cent of cases, auriculoventricular partial block of first degree in 5.4 per cent and arborization block in 2.7 per cent. Other changes of the QRS segment were present in 27.0 per cent; changes of the T wave in 16.6 per cent, auricular fibrillation in 5.4 per cent, auricular flutter in 2.7 per cent and a curve of left ventricular hypertrophy in 2.7 per cent. The fatality rate was high (12 cases, or 31.7 per cent), the deaths being more frequent in patients under 40 years of age.

Cancer in Gynecologic Patients

The third periodical report of cases of cancer of the cervix treated at the Gynecological Institute of the Rio de Janeiro University, under the direction of Dr. Arnaldo de Moraes, announces decided progress in early cancer detection through routine colposcopy, vaginal smear and, in cases of myoma, previous curettage of the uterus, with histologic examination of the mucosa thus obtained. Of 4,747 patients, 379 (7.99 per cent) had cancer of the cervix or of the cervical canal, six of which were microcarcinomas. Of this 379 cases, 6 were cancer in situ, 25 of grade I, 57 of grade II, 227 of grade III and 64 of grade IV. Surgical intervention was the main form of treatment in 51 cases, the operations being as follows: amputation of the cervix 1, abdominal total hysterectomy 3, Wertheim's operation 28 and Schauta's operation 17. Curietherapy and roentgen therapy, alone or associated with operation, were used in 217 and 198 cases, respectively. Symptomatic treatment was applied in 67 cases. Eighty-seven deaths were registered as follows: 19 during the symptomatic treatment, 9 from local relapse after operation, 16 from relapse and cachexia after curietherapy (one to five years after treatment), 20 from relapse or persistence of cancer after curietherapy plus roentgentherapy, 5 during the postoperative period, 7 after curietherapy and 11 during palliative roentgen therapy. Of the 379 cases of cancer of the cervix, 12 were of cancer of the cervical stump, discovered six months to 34 years after supravaginal hysterectomy (5 cases of epidermoid carcinoma, 1 case of adenocarcinoma, 2 cases of globocellular sarcoma and 4 cases without histologic diagnosis).

Central Nervous System Lesions in Brazilian Blastomycosis

In a series of 11 examinations performed on the cadavers of persons who died of Lutz's disease, or Brazilian blastomycosis (paracoccidioidomycosis), by Dr. A. Penna de Azevedo, of the Oswaldo Cruz Institute, in 3 cases, besides the involvement of different organs and tissues, extensive and severe lesions of the central nervous system (cerebrum, cerebellum, pons and meninges) were seen. Lesions of Brazilian blastomycosis in the central nervous system are rare, and, according to the author, no other cases have been described in which the lesions involved the nervous tissue itself. In this series, the incidence was 81.8 per cent in the lungs and 18.1 per cent in the intestines. In 2 of the cases there were nodules as large as a hazelnut, in the substance of the cerebrum, cerebellum and pons. Histologic examination showed the characteristic inflammatory lesion with granulomas and parasites in abundance, not only in the giant cells but in the rest of the tissue. Often the parasite was shown only by its capsule, giving the tissue a vacuolated or sievelike appearance. In 1 case the lesion involved only the meninges after extensive involvement of the scalp and bones of the cranium and lumbar vertebrae. In this case also the presence of the parasite was easily proved. The parasite isolated in all 3 cases was always the Paracoccidioides (Blastomyces) brasiliensis.

Correspondence

APPETITE AND OLFACTORY ACUITY

To the Editor —You have recently commented editorially (**142** 1080 [April 8] 1950) on the interesting reports of F R Goetzl and his colleagues, describing a relation between appetite and olfactory acuity It may not be amiss therefore to point out that an independent attempt to verify the existence of this relation has been completely unsuccessful In the course of a systematic study of the factors regulating food intake in men and animals, both olfactory and taste sense acuity were studied (*J Applied Physiol* **2** 217 1949) Only minor fluctuations were observed in the acuity of these senses throughout the day, and these bore no consistent relation to the presence or absence of hunger sensations and appetite (the desire to eat) The abolition of appetite by a synthetic drug was also not related to changes in the acuity of the gusto-olfactory senses

The reliability of the methods for testing both senses is high, and the tests give excellently reproducible results, so that we cannot attribute our failure to confirm Goetzl's observations to technical unreliability or masking by random fluctuations Unfortunately, the mechanisms by which tissue needs regulate food intake, and their disturbances in disease, are as yet almost completely unknown

Henry D Janowitz, M D,
Mount Sinai Hospital, New York.
M I Grossman, M D,
University of Illinois Medical College,
Chicago

LOSS OF IRON THROUGH THE SKIN

To the Editor —In your editorial "Recent Studies of Iron" (page 904 March 25, 1950) you called attention to large losses of iron in the sweat as reported by Mitchell and Hamilton (*J Biol Chem* 178 345, 1949) We have recently studied the iron content of sweat obtained from 25 normal persons (Adams, Leslie and Levin Dermal Loss of Iron to be published, *Proc Soc Exper Biol & Med*) with special attention to cellular as against noncellular components After centrifugation we found the supernatant to be clear and free of epithelial cells This liquid was found to be virtually free of iron On the other hand opalescent, uncentrifuged sweat was found to have a high content of iron These findings lead us to the belief that the dermal loss of iron is not a function of sweating but is the result of desquamation

William S Adams M D
Allan Leslie M D
Melvin H Levin M D
Veterans Administration Center
Research Service, Los Angeles

DR MAURICE I SMITH

To the Editor —In noting the retirement of Dr Maurice I Smith as the chief pharmacologist of the Public Health Service in The Journal April 22, I am reminded of his great contribution to the solution of the problem of the etiology of 'ginger paralysis twenty years ago this spring This form of paralysis affected a relatively large proportion of the population throughout some of the midwestern and southwestern states with great rapidity It was soon discovered that the disease was closely associated with the drinking of an adulterated fluid extract of ginger and it was Dr Smith and his co-workers who promptly disclosed the fact that the paralysis was due to triorthocresyl phosphate The incidence of the disease was immediately affected by this discovery, and only a few cases occurred after 1931 The work of Dr Smith and his colleagues was of the highest character and deserves particular mention at this time, in view of his thirty years of research at the National Institute of Health and its predecessor, the Hygienic Laboratory

Henry R Viets, M D, Boston

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners *Parts I and II* Various locations June 19 21 *Part III* Twenty nine centers June 6-29 Registration closes on May 6 Exec. Sec Mr E S Elwood 225 S 15th Street Philadelphia

EXAMINING BOARDS IN SPECIALTIES

American Board of Anesthesiology *Written* Various locations, July 21 *Oral* Chicago Oct. 8 11 Sec Dr Curtiss B Hickcox, 745 Fifth Ave. New York 22

American Board of Internal Medicine *Oral* San Francisco June 21 23 The oral examinations in the subspecialties will be held at the same time and places *Written* Oct 16 Asst. Sec Dr William A. Werrell 1 West Main Street Madison 3 Wis

American Board of Neurological Surgery *Oral* Chicago June 3 Applications no longer accepted Chicago Oct. 1950 Final date for filing applications is April 30 Sec. Dr W J German 789 Howard Ave New Haven Conn

American Board of Ophthalmology *Written* Various Centers January 1951 Final date for filing applications is July 1, 1950 Chicago, Oct. 2 6 West Coast Jan 1951 Sec. Dr Edwin B Dunphy 56 Ivie Road Cape Cottage Maine

American Board of Otolaryngology Chicago October Sec. Dr Dean M Lierle, University Hospital Iowa City

American Board of Pathology St Louis Oct 13 14 Sec. Dr Robert R. Moore 507 Euclid Ave St Louis 10

American Board of Pediatrics San Francisco, June 30 July 2 Exec. Sec Dr John McK Mitchell 6 Cushman Road Rosemont Pa.

American Board of Physical Medicine and Rehabilitation *Oral and Written* Boston Aug 26-27 Final date for filing applications is April 1 Sec Dr Robert L. Bennett 30 N Michigan Ave Chicago

American Board of Plastic Surgery *Oral* May June. Sec. Dr Louis T Byars 4647 Pershing Avenue St Louis Mo.

American Board of Psychiatry and Neurology San Francisco June 23 24 Applications no longer accepted Next examination December 1950 Final date for filing applications is Sept. 1

American Board of Radiology *Oral* Chicago, week of June 18 Sec Dr B R. Kirklin 102- 10 Second Ave S W Rochester Minn

American Board of Surgery *Written* Various centers Oct. 25 Final date for filing applications is July 1 Sec. Dr J Stewart Rodman. 225 South 15th Street Philadelphia

American Board of Urology Chicago Feb 10-14 1951 Final date for filing applications is Sept 1 1950 Sec. Dr Harry Culver 7935 Sunnyside Road Minneapolis 21

BOARDS OF MEDICAL EXAMINERS

Alabama *Examination* Montgomery June 27 29 Sec. Dr D G Gill 519 Dexter Avenue Montgomery

Alaska * Juneau Sept 5 Special examinations given on application Sec Dr W M Whitehead Box 140 Juneau.

Arkansas * *Examination* Little Rock June 8 9 Sec. Dr Joe Verser Harrisburg Homeopathic Little Rock June and November Sec, Dr Carl S Bungart 105 N 14th St Fort Smith *Eclectic* Little Rock June 8 9 Sec Dr Clarence H Young 1415 Main Street, Little Rock.

California *Examination Written* San Francisco June 19 22 Los Angeles Aug 21 24 Sacramento Oct. 16 19 *Examination Oral and Clinical for Foreign Medical School Graduates* San Francisco June 18 Los Angeles Aug 20 San Francisco Nov 12 *Reciprocity Oral Examination* San Francisco June 17 Los Angeles Aug 19 San Francisco Nov 11 Sec Dr Frederick N Scatena 1020 N Street, Sacramento 14

Connecticut * *Examination* Hartford July 11 12 Sec to the Board Dr Creighton Barker 160 St. Ronan St. New Haven *Homeopathic* Derby July 11 12 Sec. Dr Donald A Davis 38 Elizabeth St. Derby

Delaware *Examination* Dover July 11 13 *Reciprocity* Dover July 20 Sec. Dr J S McDaniel 229 S State St. Dover

Florida * Jacksonville June 25 27 Sec. Dr Frank D Gray 12 N Rosalind Avenue Orlando.

Georgia *Examination* Atlanta and Augusta, June. *Endorsement* Atlanta June Sec Mr R C Coleman 111 State Capitol Atlanta 3

Hawaii *Examination* Honolulu July 10 13 Sec., Dr I L Tilden, 1020 Kapiolani St Honolulu

Idaho Boise, July 10 Sec Mr Armand L Bird, 305 Sun Bldg Boise

Indiana *Examination* Indianapolis June Sec Dr Paul R Tindall, 1138 K of P Bldg Indianapolis

Iowa * *Examination* Iowa City, June 12 14 Sec Dr M A Royal 506 Fleming Building Des Moines 19

Kansas Kansas City June 7 8 Sec Dr J F Hassig 905 N 7th Street Kansas City

Kentucky *Examination* Louisville June 14-16 Sec Dr Bruce Underwood 620 S 3rd Street, Louisville 2

Louisiana New Orleans June 8 10 Sec Dr Roy B Harrison, 1507 Hibernia Bank Bldg New Orleans

Maine *Examination and Reciprocity* Augusta July 11 12 Sec. Dr Adam P Leighton 192 State St Portland

Maryland *Examination* Baltimore, June 20 23 Sec Dr Lewis P Gundry 1215 Cathedral Street Baltimore 1 *Homeopathic* Baltimore June 20 21 Sec, Dr John A Evans 612 W 40th St, Baltimore

Massachusetts *Examination* Boston July 11 14 Sec Dr George L Schadt Room 37, State House Boston 33

Michigan * *Examination* Ann Arbor and Detroit June 12 14 Sec Dr J Earl McIntyre, 100 W Allegan St, Lansing 8

Mississippi Jackson June 20 21 Asst Sec, Dr R N Whitfield Jackson 113

Missouri Examination St. Louis, May 31 June 2 and June 7 9 Exec Sec, Mr John A Hailey, Box 4, State Capitol Building Jefferson City

Nebraska * *Examination* Omaha June 5 7 Director Bureau of Examining Boards Mr Oscar F Humble, 1009 State Capitol Building Lincoln 9

New Hampshire Concord Sept 13 Sec Dr John Samuel Wheeler 107 State House Concord

New Jersey *Examination* Trenton June 20 23 Sec. Dr E. S Hallinger 28 West State Street Trenton.

New York *Examination* Albany Buffalo New York and Syracuse June 27 30 Sec, Dr Jacob L Lochner Jr 23 S Pearl St Albany

North Carolina *Written* Raleigh, June 19 22 *Endorsement* Raleigh, June 19 Sec Dr Ivan Procter, 226 Hillsboro Street Raleigh.

North Dakota *Examination* Grand Forks July 5 7 *Reciprocity* Grand Forks July 8 Sec Dr C J Glaspel, Grafton

Ohio *Examination* Columbus, June 14 17 Sec Dr H M Platter, 21 W Broad St., Columbus 15

Oklahoma * *Examination* Oklahoma City June 7-8 Sec Dr Clinton Gallaher 813 Braniff Building Oklahoma City

Pennsylvania *Examination* Philadelphia and Pittsburgh July 11 14 Act. Sec, Mrs Marguerite G Steiner, 351 Education Bldg Harrisburg

Puerto Rico *Examination* Santurce Sept 5 Sec, Mr Luis Cueto Coll, Box 3717 Santurce

South Carolina *Examination* Columbia June 26 29 *Reciprocity* First Monday of each month Sec, Dr N B Heyward 1329 Blanding Street Columbia.

South Dakota * Sioux Falls July 18 19 Sec., Dr C E Sherwood 300 First National Bank Bldg Sioux Falls

Texas * *Examination* Austin June 19 21 Sec Dr M H Crabb 1714 Medical Arts Bldg, Fort Worth 2

Utah *Examination* Salt Lake City, June Dir Dr Frank E Lees 324 State Capitol Building Salt Lake City

Vermont *Examination* Burlington June 13 15 Sec, Dr F J Lawliss, Richford

Virginia *Examination* Richmond June 23 24 *Endorsement* Richmond, June 22 Sec. Dr K D Graves 631 First St S W Roanoke

West Virginia *Examination* Charleston, July 10 12 Sec Dr N H Dyer, Capitol Bldg Charleston

Wisconsin * Milwaukee July 11 13 Sec Dr C A. Dawson River Falls.

Wyoming *Examination* Cheyenne, June 5 Sec Dr Franklin D Yoder, Capitol Bldg Cheyenne

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* Basic Science Certificate required

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Alaska *Examination* Juneau last week in August Sec Dr C Earl Albrecht Box 1931 Juneau

Arizona *Examination* Tucson, June 20 Sec, Mr Francis A Roy, Science Hall, University of Arizona Tucson

Connecticut *Examination* New Haven June 10 Exec. Asst., State Board of Healing Arts M G Reynolds 110 Whitney Ave New Haven

Florida *Examination* Gainesville June 3 Sec Mr M W Emmel, University of Florida, Gainesville.

Oregon Portland, June 17 Sec Dr C D Byrne, University of Oregon Eugene.

South Dakota *Vermillion*, June 2 3 Sec. Dr Gregg M. Evans, 310 E 15th Street Yankton.

Wisconsin Milwaukee, June 3 Madison, Sept. 30 Sec, Mr W H Barber Scott and Watson Sts, Ripon.

Bureau of Medical Economic Research

MEDICAL ECONOMIC REVIEWS AND ABSTRACTS

Prepared by the Staff of the Bureau of Medical Economic Research

The Road Ahead America's Creeping Revolution By John T Flynn. *Cloth* $2 50 Pp 160 Unabridged special edition $1 Pp 207 Distributed by The Committee for Constitutional Government Inc 205 E 42nd St, New York 17 by Special Arrangement with the Publishers, The Devin-Adair Company, 23 E 26th St New York 10 1949

In Russia socialism entered through sudden violent revolution In Great Britain it crept in gradually and almost imperceptibly In both there is government control of industry and loss of individual liberty John T Flynn believes that America is following the path of Great Britain Here socialism is occurring step by step

Socialism is slowly taking possession of America for the same reason it took hold in Britain because it is not recognized as socialism, because it is being marketed under various appealing labels which totally conceal its identity In Britain, a handful of socialists, whose number never became greater than 4,000 and who called themselves the Fabian Society, cleverly laid their plans for establishing a socialist government Realizing that they could gain power only if their true nature were disguised and if they proceeded gradually and through constitutional processes, they presented their program as "welfarism" and set themselves up as friends of the workers and the underprivileged Their social reforms, which were presumably for the aid of the underprivileged, were actually a means of making the citizens dependent on the state for the correction of all ills Every economic dislocation offered them an opportunity to gain favor through their empty promises of the good life, jobs and security for all Finally, with the economic despair which followed the second World War, their promises gained them full control of the British government

Mr Flynn contrasts the Fabian promises with the tragic reality that is now England Instead of a land of security for all, it is one of austerity for all Poverty has not been eliminated, it has been distributed And the freedom of the individual has been circumscribed by ever increasing government controls

The author does not want America to be lured by the same empty promises His book is a warning against the socialism that is slowly overtaking this country This socialism is not the undisguised socialism of Norman Thomas, whose party has received an ever dwindling number of votes at the polls Rather, it is the much more threatening socialism of the American "Fabians" which is being offered as the "Planned Economy" It is much more threatening because too many Americans do not recognize it and register their disapproval in elections Following the course of their British counterpart, the American "Fabians" or "Economic Planners" have captured the labor unions and invaded the Democratic Party and have even penetrated our churches They already occupy positions of power and leadership in national affairs

Mr Flynn notes that in this country, also, the socialists have gained ground in times of economic stress The American capitalistic system at times is in serious need of repair Mr Flynn believes that there should be planning to prevent and eliminate disturbances in our economy However, a plan to revive the economy of this country should not harbor a plot to replace it with a state-controlled socialist system

This book is more than a warning It is an expose of those persons and groups who are trying to alter the fundamental structure of our society It enables its readers to sweep aside the web of deception spun by the socialist forces in this country

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Drunkenness: Admissibility in Evidence of Results of Chemical Tests for Intoxication.—The defendant was indicted and convicted of reckless operation of a motor vehicle while under the influence of intoxicating liquor and from such conviction appealed to the Supreme Court of New Hampshire.

In order to establish intoxication, the state relied in part on evidence of a chemical analysis of blood taken from the defendant about two hours after the collision. This evidence was received subject to the defendant's exception after a preliminary hearing by the court without a jury on the question of admissibility. Before receiving the evidence, the trial court made the following findings: 'At the time the blood sample was taken from the defendant . . . he was under the influence of intoxicating liquor, that he was in a confused state of mind . . . due either to the alcoholic liquor which he had previously consumed and/or the injuries which he received in the accident, that said blood sample was obtained without force and that Sturtevant [defendant] gave his consent thereto, but the court is in doubt as to whether or not said Sturtevant was mentally capable at the time of freely giving his consent and that he was unaware that he was to be charged with a crime, that Trooper Watson stated to the respondent Sturtevant prior to the taking of his blood sample that the blood test might prove of value, or words to that effect." The Court supplemented these findings by adding "that Officer Watson told him, the defendant, that he, the officer, thought he should have it done for his own benefit."

At the close of the preliminary hearing at which the circumstances surrounding the taking of the blood specimen from the defendant were disclosed, the defendant voiced his objection to the receipt of evidence of the analysis thus: "We claim . . . that it is calling the defendant to furnish evidence against himself at a time when he was neither told nor in condition to know what his legal rights and what the implications of such procedure would be. . . ." There was no substantial change in the defendant's position, and the argument advanced before the Supreme Court is that the taking of the blood and the use made at the trial of the analysis which followed were a violation of the defendant's rights under Article 15 of the Bill of Rights, which provides in part: 'No subject shall . . . be compelled to accuse or furnish evidence against himself."

At the outset, said the Supreme Court, it may be noted that the issue before us is not affected by the rules which govern the receipt in evidence of confessions of crime. The requirements which there pertain, designed to permit receipt of only such confessions as may be trustworthy, are not applicable here. A confession is "an acknowledgment in express words" . . . 'That which is not an assertion . . . can therefore not be within the scope of such a principle; its probative use is not testimonial, but circumstantial . . .' It is apparent, the Supreme Court continued, that no assertion by the respondent is involved here, and no promise, threat or hope could affect the analysis.

If the defendant was "in a confused state of mind' and may not have been mentally capable . . . of freely giving his consent' that circumstance can be material only because his consent was essential to an effective waiver of his constitutional privilege not to 'furnish evidence against himself." If consent is material, said the Supreme Court, we are bound by the findings of the trial court to consider that it was not shown to have been intelligently given. We are thus squarely faced with the question of whether evidence of a blood analysis is admissible in evidence over the constitutional objection previously stated, where it appears that the sample analyzed was obtained without force before arrest, at a time when the accused is not shown to have been capable of consent.

The constitutional provision invoked appears with varying phraseology in our Federal Constitution and those of most of the states, but because of their common historical origin, the variations are not considered to alter the essential meaning. Whatever their form, the purpose of the provisions may be regarded as uniform, to protect an accused "from any disclosure sought by legal process against him as a witness." Authorities establish the privilege to be one against testimonial compulsion only and that it is inapplicable to cases such as this, where the evidence is real rather than testimonial. As applied specifically to the question of making a blood test for intoxication, it must be recognized that the authorities are lacking in agreement on the effect of the privilege against self incrimination. We consider the better view, said the Supreme Court, and that which we do not adopt, to be that expressed by the Court in the recent case of State v. Cram, decided by the Supreme Court of Oregon. After reviewing the authorities at length, the Court in that case held that evidence such as was here received was admissible over the constitutional objection here urged although it there appeared that the respondent was unconscious and hence incapable of giving his consent at the time the blood specimen was taken. The Court then quoted with approval the language of Mr. Justice Holmes from a decision of the Supreme Court of the United States which said: "But the prohibition of compelling a man in a criminal court to be a witness against himself is a prohibition of the use of physical or moral compulsion to extort communications from him, not an exclusion of his body as evidence when it may be material." Other authorities, said the Supreme Court of New Hampshire, have reached a comparable result where the evidence disclosed no compulsion or resistance in the taking of a specimen for analysis. The exception to the receipt of the evidence of the blood analysis was therefore overruled and the defendant's conviction was sustained.
—*State v. Sturtevant, 70 A. (2d) 909 (New Hampshire 1950).*

Drunkenness: Admissibility in Evidence of Results of Chemical Tests.—The defendant was convicted in the county court for driving an automobile while intoxicated. From this conviction he appealed to the court of criminal appeals of Texas.

The defendant, arrested for driving while intoxicated, was taken to the police station, where he voluntarily gave a specimen of urine for examination and analysis for alcoholic content. The specimen was examined by a laboratory technician of the city-county health unit. This technician at the trial testified that the specimen showed an alcoholic content of 0.27 per cent and, over the objection of the defendant that he was not shown to be qualified, expressed his opinion that 'the result obtained from a concentration of 0.27 per cent of alcohol in urine indicates a definite degree of intoxication in the person from whom the sample was taken."

When expert testimony is offered, said the court, the qualification of the witness to so testify should be fully shown not only to aid the court in determining the admissibility of the testimony but also to aid the jury in determining the weight to be given thereto. It is sufficient, for instant purposes, to say that the trial court was authorized, in the exercise of his discretion, to permit the witness to testify as to the result of the urinalysis. There is no testimony, however, showing that the witness was qualified to express the opinion to the effect that the percentage of alcohol found in the defendant's urine indicated a definite degree of intoxication. To be authorized to express such opinion the witness was of necessity, required to have technical training as to the human body, the effect of alcohol thereon and the degrees of intoxication produced by the use of alcohol. The witness did not profess to have knowledge, experience or training touching such matters. It is apparent, therefore, concluded the court of appeals, that the witness was not authorized to express an opinion as to defendant's intoxication.

The judgment of conviction was therefore reversed and the case remanded for a new trial.—*Lopez v. State, 225 S. W. (2d) 852, (Texas 1950).*

Current Medical Literature

AMERICAN

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*Effect of War Imposed Protein Free Diet on Blood Pressure Level in Essential Hypertension J Kohari Kucharik —p 27
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Effect of Protein-Free Diet on Essential Hypertension —Kohari-Kucharik *points out that during* the siege of Budapest in 1945 the supply of animal proteins became exhausted This circumstance made it possible to study the influence of a diet free of animal proteins on hypertension He reports observations on patients with hypertension who had been treated two to five years and the majority of whom attended the outpatient clinic fortnightly Because of the war, *only* 39 of the original 150 patients could be followed The period during which animal proteins were unobtainable lasted about ten months The 39 patients with long-standing essential hypertension did not show any consistent change in blood pressure after this long period of protein deprivation

Nutrition Surveys Iron and Anemia —Youmans and associates report on the nutrition of a rural population of some 1,200 persons in middle *Tennessee, with respect* to the intake of iron, signs and symptoms of anemia and the condition of the blood The characteristics of the population, the general methods of the study and the results with respect to calories, protein *vitamin* A, vitamin D, calcium and vitamin C had been given in previous papers The daily intake of iron was found in a large percentage of the *population to be below the levels* commonly recommended Anemia, as measured by the concentration of hemoglobin, was found in approximately 14 per cent of the population, but there was a wide variation in frequency in the various age, sex and racial groups The incidence was greatest in female subjects at puberty and older and generally greater in Negro than in white subjects In general, a reduction in red cells below normal was more frequent (20 per cent) than a reduction in hemoglobin A decreased mean cell volume (microcytosis) was found in a considerable number of those 16 years of age and older, and there was a decrease in the mean corpuscular hemoglobin in the female subjects in this age group An increased cell volume (macrocytosis) in over one third of the population was a surprising finding In 166 persons the mean corpuscular volume was more than 4 standard deviations above upper normal limits (Wintrobe) Of this latter group, 89 and 97 per cent (white and Negro, respectively) had red cell counts below normal and 35 to 51 per cent had below 4 *million* Five *of these subjects* were *given a single injection* of 20 mg of folic acid and responded with slight reticulocytosis Some had a higher than normal mean corpuscular hemoglobin The cause of the high incidence of macrocytic anemia has not been definitely explained, some have ascribed such anemias to deficiencies in the vitamin B complex but also to deficiencies in *other nutrients*

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Carbon Tetrachloride Poisoning in Man —Sirota studied the renal function of 4 male patients with acute renal damage due to inhalation of carbon tetrachloride In describing the tests and the results obtained, the following abbreviations were used IN for inulin, CR for endogenous creatinine PAH for p aminohippurate and C for clearance, thus C_{in} in clearance of inulin Tm_{pah} and Tm_{d} are tubular maximal excretory capacity for p aminohippurate and diodrast® (iodopyracet injection) respectively E is renal extraction ratio RBF is renal blood flow and U/P ratio is ratio of urine concentration to plasma concentration Renal venous blood was obtained by catheterization of the right renal vein P-aminohippurate was used as the test substance The recovery of renal function following acute renal failure due to carbon tetrachloride poisoning is characterized by three clinical phases The first phase starts with the cessation of oliguria and is associated with rising plasma creatinine and urea concentrations in spite of an adequate urine flow It lasts one to three days, during which time there is little change in C_{in} C_{cr} and C_{pah} The second phase starts with a rapid decline in the plasma urea and creatinine levels and a simultaneous rapid rise in C_{in}, C_{cr} and C_{pah}, which reach 40 to 70 per cent of normal by the fortieth day from the onset of oliguria The third phase starting about the fortieth day, is characterized by gradual improvement in renal blood flow and glomerular filtration so that the lower limit of normal is reached between the hundredth and two hundredth day During this phase the ability to elaborate a maximally concentrated urine is recovered During the early part of recovery phases Tm_{pah} reached high normal or supernormal values in 3 of the patients These gradually declined to the expected norm The ratios C_{in} Tm_{pah} and C_{pah} Tm_{pah} however, were significantly lower than normal in all 4 patients when last determined on the sixtieth, two hundred fiftieth three hundred seventh and three hundred thirty-first day, respectively, suggesting some residual vascular damage

Serum Proteins in Virus Hepatitis —Ricketts and Sterling describe investigations of the alterations of serum proteins in the course of a virus hepatitis, including its later stages Electrophoretic runs were performed with standard apparatus and technic Ten volunteer subjects with normal tests of hepatic function served as controls Twenty one clinically typical cases of hepatitis were studied Electrophoretic analyses of serum proteins in 10 cases of acute virus hepatitis revealed diminished albumin values in all, elevated gamma-globulins in 7 of the 10 and elevated beta-globulins in the same number Cases of severe acute hepatitis showed in general more pronounced changes than milder cases, but no strict correlation existed Serial electrophoretic analyses disclosed reversion of the serum proteins to normal in 2 cases of acute hepatitis, but persistent abnormalities were observed in 3 cases despite clinical recovery Late follow up studies on serums from 11 patients who had clinically recovered from acute virus hepatitis 10 to 36 months previously revealed residual abnormalities in the electrophoretic patterns of 8 of the 11 serums

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Pseudohypoparathyroidism —Lowe and co-workers report 1 case of pseudohypoparathyroidism in a girl who at the time of her first admission to the hospital was 2 months of age She was readmitted to the hospital several times at various intervals and was aged 4 years and 8 months when she was discharged for the last time Pseudohypoparathyroidism is a rare disease, for which the term Seabright bantam syndrome was suggested The Seabright bantam roosters have female tail feathers, presumably the feathers do not respond to male sex hormones in this species of bird as they do in other species Failure of response to parathormone was suggested to be responsible for the chemical aberrations in the blood present in this syndrome The sequence of events in the pathogenesis of the patient in the authors' case was as follows her primary disease was steatorrhea This had been present since very early in life, though the cause could not be determined Steatorrhea caused malabsorption of the fat-soluble vitamins Secondary to the malabsorption of vitamin D, the patient failed to absorb calcium from her intestines This in turn caused hypocalcemia and tetany At 4 months of age the patient had values of calcium and phosphorus in her blood consistent with hypoparathyroidism Concentration of calcium and phosphorus in the blood returned to normal levels after parenteral administration of large doses of vitamin D Elevated serum alkaline phosphatase was present even during a period when there was neither clinical nor laboratory evidence of liver disease There was lack of evidence of osteomalacia in roentgenograms of the bones, but there was a definite interference with normal trabecular structure, this being characterized by intermingling of abnormally dense with abnormally rarified areas The patient presented unusually dense metaphysial bone Phosphate diuresis failed to appear after intravenous administration of parathyroid extract If one accepts the fact that the patient had aberrations in calcium and phosphorus metabolism secondary to steatorrhea, the initial bone disease must be considered as osteomalacia, and the elevated serum alkaline phosphatase, which is ordinarily not noted in hypoparathyroidism, seems to be compatible with this It might explain why the bones showed rarifaction as well as increased densities on roentgenologic examination The failure of renal response to parathyroid extract might be likened to an "escape" phenomenon in which, because of continued overstimulation, the kidneys had become refractory to parathormone Patients and experimental animals frequently become refractory to prolonged administration of parathyroid extract Animals maintained on low calcium diets rapidly become resistant to parathyroid extract Some cases of the Seabright bantam syndrome or conditions simulating it may have as their cause chronic overstimulation of the renal tubules by the parathyroid gland, with occasional failure of response of these end organs

Respiratory Paralysis in Poliomyelitis —Masland and co-workers used positive pressure breathing in 10 patients with the respiratory or bulborespiratory forms of poliomyelitis during the 1948 epidemic in North Carolina Severe pulmonary edema was reversed by the use of the positive pressure respirator in 3 patients, and pulmonary edema was probably prevented in some of the other patients The progressive hypoventilation which develops in the paralyzed patient is due to pulmonary edema rather than to atelectasis in many instances The intermittent use of positive pressure breathing leads to improvement in patients of this type Positive pressure respiration has definite value in treatment of respiratory paralysis in poliomyelitis both in increasing the ease of movement of the patient and in the prevention and treatment of certain of the pulmonary complications which develop in the paralyzed patient

Infectious Lymphocytosis —Lemon and Kaump report an epidemic of mild infectious lymphocytosis in 36 small children of a total population of 106 children from the Sarah Fisher Home for Children in Detroit The children ranged in age from 18 months to 6 years, except for 3 all were between the ages of 2 and 3 years Forty-nine children were examined and could be placed in one of three groups determined by the total leukocyte count and by numerical alterations in either or both of the lymphocyte and eosinophil counts In group 1 were included 17 patients who had total leukocyte counts of over 15,000 per cubic millimeter and lymphocyte counts greater than 70 per cent or eosinophil counts over 3 per cent There were 5 of the 17 patients in whom it was felt that a more or less complete cycle of the disease was represented in the study, in 9 patients the lymphocytosis was in a subsiding phase at the time of the beginning of the authors' study, and 3 patients were believed to be in a chronic or slowly regressing phase of lymphocytosis In group 2 were included 19 children who had total leukocyte counts less than 15,000 per cubic millimeter but with elevation of either or both of the lymphocyte or eosinophil count In group 3 were included 13 children in whom the hematologic values were within normal range and who served as controls Clinical observations were not suggestive of any specific clinical picture of the disease It is apparently not associated specifically with respiratory infections or hepatitis but probably does occur in epidemic form Its course consists of an acute or ascending phase, a subsiding or descending phase and a chronic or variable phase The disease is characterized hematologically by an absolute leukocytosis and lymphocytosis of varying degrees which may persist four to seven weeks in the acute and seven to twelve weeks in the subsiding and late phases The lymphocyte morphology is not pathognomonic, although large-sized mature cells tend to predominate in the phase of greatest leukocytosis and again in the phase immediately following recovery as indicated by a return to normal of the total leukocyte level Eosinophilia is frequently observed in the recovery phase There is a high percentage of lymphocytes of normal mature form in the bone marrow, thus distinguishing infectious lymphocytosis from infectious mononucleosis and lymphatic leukemia The disease is apparently benign and self limited Sulfadiazine and/or penicillin had no beneficial effect on the course of the disease.

Journal of Thoracic Surgery, St. Louis

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Surgical Treatment of Mitral Stenosis—Harken and co workers employed surgical treatment in 8 of 25 patients with mitral stenosis Mitral valvuloplasty was performed in 5 patients, with 3 deaths Artificial interatrial shunts were produced through the provision of septal defects in 2, while cardiac denervation was performed in 1 Death occurred in the first of the 3 fatal cases because the devastating effect of tachycardia was not appreciated The second death resulted on the operating table from uncontrolled blood loss and the third from pulmonary edema on the fifth postoperative day Autopsy revealed that too little valvuloplastic incision had been made The significant point in stenosis is the pronounced thickening in a ring of dense *fibrous* tissue at and just behind the free margin This ring is continuous across the fused commissural zones and prevents the closure of the valve in systole, just as it prevents *opening of the valve in diastole* Considerable improvement in the valvular action of the thickened mitral funnel can be expected if this ring is broken, preferably by incision or wedge resection in both commissural zones An operating tunnel is presented which provides an opportunity for more deliberate, better controlled intracardiac operation in human valvuloplasty Completed postoperative evaluation in 1 of the patients showed improvement associated with the valvuloplastic operation. Two new principles of mitral valvuloplastic surgery were evolved Blind intracardiac maneuvers must be well controlled and deliberate. There must be the least possible stimulation of the ventricular endocardium during intracardiac operation

Surgery of Mitral Stenosis—Bailey and co-workers report on surgical treatment in 15 patients with mitral stenosis Commissurotomy was performed on 3 men and 4 women between the ages of 21 and 39, with excellent results in 4 and 3 deaths Commissurotomy is a simple, direct, effective and safe procedure. It accomplishes relief of mitral stenosis by restoring valve function without the production of additional mitral regurgitation Digital guidance in the performance of accurate valve surgery is essential until a method of direct vision becomes established. The left auricular appendage is the most satisfactory route of approach to the mitral valve The auricular appendage must be ligated at the conclusion of the procedure to prevent arterial embolization An enlarged left ventricle in a case of supposed 'pure" mitral stenosis is indicative of some additional significant valve lesions, such as aortic stenosis or regurgitation or mitral regurgitation, and presents probably a contraindication to commissurotomy In 2 of the remaining 8 patients the interventions were exploratory or only attempted, for both patients died before the heart was entered An incision was inadvertently made across the anteromedial valve cusp rather than through the posterior commissure in 2 other patients, resulting in severe mitral regurgitation and death An interauricular shunt was produced in 1 patient Simple digital dilation of the mitral orifice was carried out in the 3 remaining patients because of their poor condition Two of these died, while 1 was greatly improved Patients with mitral stenosis must be carefully studied and selected for operation In addition to clinical evaluation this should include cardiac catheterization for determination of pulmonary vascular pressures, ballistocardiography and other physiologic studies of cardiac output Venous shunts for the treatment of mitral stenosis are of some value, although their occasional effects on cardiac output, the right ventricle and the lesser circulation must be kept in mind

Michigan State Medical Society Journal, Lansing

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Rehabilitation of Hard of Hearing School Child Detroit s Plan L. Galdonyi —p 89
Family Guidance. J M Dorsey —p 92

Nebraska State Medical Journal, Lincoln

35 1-28 (Jan) 1950

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Hydatidiform Mole and Chorio-Epithelioma E M Dorr —p 8
Consideration for Surgery in Management of Bleeding Peptic Ulcer R. R Best —p 11
Pre and Postoperative Care of Gastric Surgical Patients W P Kleitsch —p 16
Uteroplacental Apoplexy (Couvelaire Uterus) Review with Report of 2 Cases W L Rumbolz and R A McShane —p 19

35 29-64 (Feb) 1950

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Differential Diagnosis of Jaundice F Bayless —p 35
Influence of Cancellous Bone in Healing of Fractures Requiring Open Reduction J E M Thomson —p 38
Bronchial Adenoma Case Report. H D Hilton, F H Tanner and G E Place —p 41
Bronchogenic Carcinoma J J O Neil —p 44

New England Journal of Medicine, Boston

242 *39-76 (Jan 12) 1950*

Practicing Physician in the Field of Preventive Medicine. W G Smillie —p 39
Effect of Nasal and Sinus Surgery upon Manifestations of Allergy F L Weille —p 43
*Fatal Agranulocytosis Following Therapy with 'Presidon' (3 3-Diethyl 2 4-Dioxotetrahydropyridine) New Sedative Hypnotic Agent A. H Covner and S L. Halpern —p 49
*Quinidine as Cause of Thrombocytopenic Purpura Report of Case J W Norcross —p 53
Aseptic Intestinal Decompression During Surgery J O L Nolan and G C Finley —p 54
Toxicology J T Walker —p 56
Carcinoma of Left Breast with Generalized Metastases Including Right Breast Pleura, Pulmonary Lymphatics, Liver, Spleen and Bone Marrow —p 61
Pulmonary Endarteritis (Ayerza s Syndrome) Cor Pulmonale —p 64

Fatal Agranulocytosis Following Use of New Sedative—Covner and Halpern point out the danger involved in the use of one of the recently introduced nonbarbiturate sedative drugs, presidon (3,3-diethyl-2,4-dioxotetrahydropyridine) (pyrithyldione) The drug was advertised as predictable in its effect, rapid in onset, with negligible side effects, and completely nontoxic and safe. The authors present the history of a woman, aged 64, who died after having been given a total dose of 1 8 Gm of the drug in five days Although the patient had also been given dihydromorphinone (dilaudid®) hydrochloride and barbiturates, the authors present evidence to show why these should not be incriminated as the toxic agents in this case The patient was given antibiotics in the form of penicillin and streptomycin, blood transfusions and leukopoietic agents, including pentose nucleotide, pyridoxine and liver extract The fatal outcome was consistent with the fact that the period of total lack of circulating granulocytes was relatively long, that the patient was an elderly person with poor previous health and poor tissue resistance and that the bacterial invasion was with Pseudomonas aeruginosa (Bacillus pyocyaneus), an organism known to be resistant to penicillin and frequently also to streptomycin Overwhelming sepsis was responsible for the patient's death while she was probably on the verge of recovering bone marrow function, as indicated by the monocytosis The authors stress that all new drugs should be carefully investigated for a possible damaging effect on the hematopoietic functions before their safety is regarded as definitely established

Quinidine as Cause of Thrombopenic Purpura—Norcross cites 2 previously reported cases of thrombopenic purpura following administration of quinidine and reports a third case A woman, aged 66, was admitted to the clinic with a complaint of three attacks of spontaneous bruising and bleeding in the previous seven years Each attack had been preceded by paroxysmal auricular tachycardia, for which quinidine had been prescribed A severe episode had occurred five weeks before admission In accordance with medical advise she had taken 0 37 Gm (6 grains) of quinidine sulfate when the attack of paroxysmal heart action started and an additional 0 2 Gm (3 grains) when it had persisted one hour Several hours later abdominal distress, nausea, weakness and headache developed These symptoms were followed by petechial hemorrhages into the skin of the extremities and trunk and into the mucous membranes of the mouth There were numerous ecchymotic areas on the body, epistaxis, hematuria and hematemesis Later in the same day, there were four convulsions and she became comatose At that time the platelet count was 85,000, the bleeding time 7 minutes and the clotting time 3 minutes with no clot retraction After this attack the patient avoided quinidine and there were no more purpuric abnormalities The author believes that this case represents another example of a rare idiosyncrasy to quinidine resulting in thrombopenic purpura

New York State Journal of Medicine, New York

50 *113-240 (Jan 15) 1950*

SYMPOSIUM ADULT HEART DISEASE

Differential Diagnosis of Rheumatic and Congenital Heart Disease in Adults J G F Hiss—p 169
Recent Trends in Hypertensive Heart Disease M E Missal—p 173
*Diagnosis and Treatment of Peripheral Arterial Disease J S Regan—p 179
Mediastinal Emphysema with Spontaneous Pneumothorax D R McKay—p 182
Pneumonectomy for Tuberculous Bronchostenosis E N Packard—p 187
Diaphragmatic Hernia H W Meyer—p 190
Transitory Changes of Refraction in Diabetes Mellitus J J Stern—p 195
*Packing of Mediastinum in Treatment of Hematemesis Due to Esophageal Varices J H Garlock and M L Som—p 197
Monaldi Drainage—Valuable Adjunct in Surgical Treatment of Pulmonary Tuberculosis W Woodruff and C G Merkel—p 201
Decortication of Lung in Nontraumatic Lesions H C Maier and W W Fischer—p 207

Peripheral Arterial Disease—Regan performed 142 sympathectomies on extremities of 99 patients with peripheral vascular disease Decided relief and increased warming of the foot was obtained in 20 of 21 patients with early arteriosclerosis obliterans Sympathectomy offers less value in cases of arteriosclerosis obliterans when there is severe pain day and night or obvious gangrene of a digit than when claudication pain is the major symptom Bilateral sympathectomy is to be preferred to unilateral, since the disease usually involves both legs Good results were obtained in 20 of 23 patients with Buerger's disease The patients were young men, but the author believes that nearly every patient with Buerger's disease should be subjected to sympathectomy regardless of the results of preoperative tests Poorer results should be expected in patients with longstanding Buerger's disease than in those with a shorter history Complete relief from symptoms resulted in all 15 patients with Raynaud's disease, including 3 with vasospastic phenomena Preganglionic dorsal sympathectomy is the procedure of choice Thirteen of 21 patients with post-traumatic dystrophy (causalgia) obtained decided relief, while slight or no relief occurred in the remaining 8 Seven of these 8 patients were women, suggesting that results in causalgia are better in men The operations on the lower extremity were attended with greater success than were those on the upper extremity Only temporary relief was obtained in 5 patients with scleroderma

Hematemesis Due to Esophageal Varices—Garlock and Som used gauze packing of the mediastinum in 5 men and 2 women between the ages of 21 and 62 and a child aged 2½ years with hematemesis caused by esophageal varices The packing operation takes advantage of the communicating system at the cardia between the portal and caval circulations The authors believe that the establishment of a new periesophageal plexus will reroute the portal blood from the submucosal varices to the new plexus, mainly because of the difference in pressures in the portal system and the caval circulation The direction of flow is from a higher to a much lower pressure area It is because of this fundamental physiologic fact that mediastinal packing is proposed In the first of the authors' patients treated with packing of the posterosuperior mediastinum there had been no further bleeding for eight years The second patient so treated did not have a recurrence of the previously severe hematemesis for four years The third patient had one episode of bleeding two weeks after leaving the hospital but had shown steady improvement since then for nearly two years The procedure failed in 2 patients In 2 patients the packing operation was extended to include packing of the entire posterior mediastinum from the arch of the aorta to the diaphragm through a right transpleural approach, which was performed as a second stage in selected cases Evidence in the authors' cases indicates that a periesophageal collateral circulation develops after the packing operation When subsequent hematemeses occur, they are not as severe or profuse as previously, indicating that some of the venous load has been taken from the submucosal varicose network Mediastinal packing in one or two stages should be carried out before one considers the more extensive and complicated venous shunt procedures

Northwest Medicine, Seattle

49 *1-76 (Jan) 1950*

Use of Cardiac Catheterization in Medical Practice D M Green, A D Johnson, W C Bridges and others—p 27
Remote Effects of Hypertension in Pregnancy R C Benson—p 29
Helpful Hints for Everyday Practice A C Jones—p 33
Vocational Rehabilitation As Viewed by Industrial Physician C M McGill—p 34
Repair of Female Urethra A F Lee—p 35
Postoperative Wound Disruptions at Sacred Heart Hospital Report of Five Year Study C H Phetteplace—p 38
Human Toxoplasmosis Family Case Study J T Robson—p 42
Treatment of Enuresis C D Goodhope—p 43
Origin and Development of Northwest Medicine C A Smith—p 45

Oral Surgery, Oral Medicine & Oral Path, St Louis

3 *1-144 (Jan) 1950* **Partial Index**

Principles and Technique of Exodontia F W Rounds—p 3
Biochemical Factors in Possible Developments of Malformations of Oral Tissues, Especially Cleft Palate and Harelip D C Lyons—p 12
Relieving Pain Caused by Dentures G H Drury—p 31
Bowen s Disease of Mucous Membrane of Mouth Review of Literature and Presentation of Six Cases R J Gorlin—p 35
Local Anesthetic Solutions Their Toxicity and Treatment. E C Dobbs and M I Kader—p 52
Periapical Roentgenography as Applied in Children M Lozier—p 58
Partial Anodontia Brief Review and Case Report of Multiple Familial Incidence D J Kennedy—p 63

Virginia Medical Monthly, Richmond

77 *53-104 (Feb) 1950*

Total Colectomy for Benign Conditions—with Consideration of Anal Ileostomy with Sphincter Preservation M M Ravitch—p 55
Fever Common Symptom in Carcinoma of Stomach D A Berlin and W B Porter—p 59
Relation of Pituitary Adrenal Function to Rheumatic Diseases G S Grier III—p 66
X Ray Therapy of Non Malignant Conditions P W Roman and S H Macht—p 71
Correlation of Appendicitis and Oxyuris Vermicularis C L Velkoff—p 75
Anaplastic Carcinoma of Lung with Metastasis to Spinal Cord—Case Report R L Waddell—p 77
Efficacy of Punch Biopsy of Liver L E Meiselas—p 79

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted Single case reports and trials of new drugs are usually omitted

Brain, London

72 265-486 (Sept.) 1949 **Partial Index**

Study of Efferent Connexions of Frontal Lobe in Human Brain After Leucotomy M Meyer —p 265
Relative Sympathetic Contribution to Individual Roots of Brachial Plexus in Man S Sunderland and G M Bedbrook —p 297
Adequate Stimuli (with Special Reference to Cutaneous Nerves) J H Parsons —p 302
Sensation and Volition W Gooddy —p 312
Hereditary Ataxia with Optic Atrophy of Retrobulbar Neuritis Type and Latent Pallido-Luysian Degeneration M Andre Van Leeuwen and L Van Bogaert —p 340
Progressive Fibrinoid Degeneration of Fibrillary Astrocytes Associated with Mental Retardation in Hydrocephalic Infant W S Alexander —p 373
*Subacute Combined Degeneration of Cord I Response to Liver Extracts II Trials with Vitamin B_{12} Appendix Quantitative Method of Assessing Neurological Status C C Ungley —p 382
Spontaneous Electrical Activity of Human Thalamus D Williams and G Parsons Smith —p 450

Liver Extracts and Vitamin B_{12} in Degeneration of the Cord —Ungley gives an account of attempts to determine the nature of the agent in liver which is effective in subacute combined degeneration of the cord These culminated in successful trials with a red crystalline antipernicious anemia factor, vitamin B_{12} one of the red pigments contained in Lester Smith's less pure earlier material Eight patients with subacute combined degeneration were studied by the quantitative method described in the appendix to this paper, 2 were affected slightly 2 moderately and 2 severely The first 4 patients, who were given the less pure material initially, have been treated for fourteen to nineteen months for the past thirteen of which they have received the pure substance The remaining 4 patients, treated for nine to thirteen months, received red crystalline material from the outset Three of the 5 patients given transfusions noted a diminution of paresthesia, but apart from this none showed improvement and 1 became worse. The improvement observed after vitamin B_{12} therapy was compared with the "expected" improvement based on treatment of 44 patients with liver extract Four of the 8 patients exceeded the expected rate of improvement, 2 attained it and 2 fell just short of it. Vitamin B_{12} is therefore as effective as liver extract not only in pernicious anemia but also in subacute combined degeneration of the spinal cord Except perhaps for patients who have become sensitized to some impurity in liver fractions the pure substance has no advantage over liver extracts, particularly if their potency is determined clinically and microbiologically and expressed in terms of micrograms of vitamin B_{12} Weekly doses of 40 micrograms or their equivalent in liver extract are usually adequate in the first six months, with half these amounts for maintenance thereafter At the least sign of relapse, however, or if intercurrent infection should supervene, dosage should be increased until complete arrest of the neurologic condition is assured

Edinburgh Medical Journal

56 509-572 (Nov) 1949

Freedom of Thought in Science F W Jones —p 509
On Depression T A Munro —p 530
Surgical Practice in Scandinavia Some Impressions of Recent Visit. M R Ewing —p 544
*Acute Ischaemia of Lower Limb as Complication of Transfusion with Plasma H A F Dudley —p 557

Acute Ischemia of Limb Following Plasma Transfusion —Dudley reports that a boy aged 20 months was admitted to the hospital three hours after sustaining a 40 per cent body surface scald involving the head, neck, upper limbs and trunk He was in severe shock a plasma transfusion was started by cutting down on the right internal saphenous vein, 4 cm above the medial malleolus The child's blood pressure and hemoglobin were satisfactorily maintained during the initial stages of therapy which included the application of pressure dressings Twenty three hours after the injury he was restless and his color was poor, in spite of satisfactory blood pressure, the transfusion was running well, but the right foot was cold One hour later, coincident with a slight fall in blood pressure and a further deterioration in the general condition, the capillary circulation became sluggish, a cyanotic color developed and arterial pulsation in the foot was absent The popliteal pulse could not be felt in either leg but both femoral pulses were present The drip was transferred to the other leg but the child continued to deteriorate and died three hours later Acute ischemia associated with intravenous transfusion is rare Two cases have been described following forced plasma transfusion in infants, but in these intra-arterial thrombus seems to have existed In the present case four possible mechanisms can be suggested to account for the acute ischemia (1) massive venous thrombosis, (2) retrograde arterial obstruction through large arteriovenous anastomoses, (3) pressure occlusion of the blood supply, and (4) arterial spasm The author suggests that arterial spasm was most likely the cause in this case

Journal of Pathology and Bacteriology, Edinburgh

61 319-498 (July) 1949 **Partial Index**

Hepatic Changes in Young Pigs Reared in Cold and Damp Environment. J M Naftalin and J W Howie —p 319
Effect of Penicillin on Tubercle Bacillus Tubercle Penicillinase C N Iland and S Baines —p 329
Immunisation of Mice Against Group B Streptococci by Intraperitoneal Inoculation of Living Cultures Combined with Penicillin I H Pattison —p 337
Bacteriological Examination of Faeces G T Cook and R. Knox. —p 353
Craniopharyngioma or Para Pituitary Adamantinoma (Erdheim s Tumour) W Walker —p 359
Nephroblastoma Occurring in Adult Life H A Sissons —p 367
Experimental Pulmonary Oedema of Nervous Origin G R Cameron and S N De.—p 375
Identification of Clostridium Oedematiens and Experimental Investigation of Its Role in Pathogenesis of Infectious Necrotic Hepatitis (Black Disease) of Sheep S Jamieson —p 389

Medical Journal of Australia, Sydney

2 829-864 (Dec. 10) 1949 **Partial Index**

*Treatment of Neurosyphilis E Susman —p 829
Scope of General Practice R G Quinn —p 834
Ante Partum and Post Partum Haemorrhage W K. McIntyre —p 836
Closed Head Injury Modern Conceptions and Their Influence on Treatment R S Hooper —p 840

Treatment of Neurosyphilis —Susman stresses the importance of the examination of the cerebrospinal fluid in the diagnosis of neurosyphilis, citing several cases in which the correct diagnosis was missed because this examination was omitted Administration of tryparsamide is useless and arsenic and bismuth compounds are obsolescent If penicillin is used as the only treatment, a standard course is 9 to 12 million units, spread over two weeks No form of neurosyphilis requires intrathecal administration of penicillin Inadequate treatment is an error No patient should be pronounced Wassermann fast until he has had repeated courses over a period of two years Herxheimer reactions should be ignored This term does not embrace penicillin rashes or other evidence of sensitivity to the drug The treatment of choice for neurosyphilis is the combination of penicillin and malaria The fever therapy should be given two or three days before starting the penicillin therapy It seems reasonable to treat residual psychoses by shock therapy

South African Medical Journal, Cape Town

23 971-986 (Dec 3) 1949

Lamellar Corneal Grafts S Etzine —p 971
*Wood Dust as Inhalant Allergen Bronchial Asthma Caused by Kejaat Wood (Pterocarpus Angolensis) D Ordman —p 973
Epilepsy III Surgical Treatment J F P Erasmus —p 977

Wood Dust as Cause of Asthma —Ordman reports that asthma developed in a cabinet maker as the result of inhalation of the dusts of several African woods, including kejaat (Pterocarpus angolensis) The man aged 39, had been working with woods since he was 14 years of age His asthmatic attacks began when he started to handle kejaat wood Previously he had worked with mahogany walnut, teak, oregon, deal and pine Kejaat is an attractive brown, durable wood which grows in the Transvaal The patient said that within one-half hour of being in contact with kejaat he experienced tightness in the chest and difficulty in breathing with cough and considerable sneezing An intradermal test with kejaat proved positive, although scratch tests with the same substance proved negative Desensitization to the wood was carried out by the intradermal method Relatively few injections of extract of kejaat wood produced rapid relief, and further injections maintained the patient in an asthma-free condition although his working conditions remained unchanged This case and another case previously described indicate that with the therapeutic use of specific desensitizing wood extracts the prognosis is good

Annales de l'Institut Pasteur, Paris

77 643-790 (Dec) 1949 Partial Index

Microculture of Kochs Bacillus on Slides in Human Blood, Use of Preserved Blood for Determination of Streptomycin Resistance E Bernard and B Kreis —p 653

Differentiation of Embryonic Nervous Tissue in Culture on Plastic Membranes W P Wei and G Barski —p 674

Research on Mode of Action of Sulfone Compounds I Bacteriostatic Activity In Vitro F Boyer N Rist and M Saviard —p 680

*Prevention of Phenolic Shock During Antirabic Treatment *Importance* of Varying Site of Injections H Marneffe and H Seys —p 744

Prevention of Phenolic Shock During Antirabic Treatment —Marneffe and Seys observed an untoward reaction to antirabic treatment in 13 of 265 persons The reaction had the character of phenolic shock in 5 of the 13 Two rabbits were treated with phenolated antirabic vaccine, the same site being injected daily A sudden generalized clonic and tonic crisis resulted in syncope and death within two to three minutes after the nineteenth and twenty-second injection, respectively A third rabbit which received a long series of injections with the same vaccine, but at various sites, remained unharmed The generalized clonic and tonic crisis could not be produced in rabbits given antirabic vaccine which was not phenolated This crisis was interpreted as similar to phenolic shock in man The crisis was not produced in rabbits given injections with an aqueous 5 per cent solution of carbolic acid in the same dose and at the same time as the phenolated vaccine The repeated injections of the phenolated vaccine at the same site seemed to have caused the death of the experimental animals Twelve sites, on the abdomen, flanks and back, were used for repeated series of twelve antirabic injections in 3,000 persons from November 1946 to April 1949, without a single instance of phenolic shock

Deutsche medizinische Wochenschrift, Stuttgart

74 *1453-1484 (Dec 2) 1949* Partial *Index*

Clinical Aspects of Postwar Endocarditis and Their Evaluation K. Spring and A Gabele —p 1453

Syndrome of Latent Jugular Phlebitis O Meyer —p 1456

*Clinical, Epidemiologic and Serologic Observations on Q Fever in *Northern Wurttemberg During 1948 1949 F Freygang —p 1457*

Q Fever in Northern Wurttemberg —Freygang reports an epidemic of Q fever in the neighborhood of Stuttgart in Northern Württemberg, Germany, from November 1948 to May 1949 Seventy-two persons were affected during the first wave of the epidemic, in November and December 1948 Thirty-four of the 72 patients presented the clinical picture of pneumonia, confirmed roentgenologically The incidence in men was twice that in women The youngest patient was aged 6 years and the oldest 72 Approximately the same number of cases were reported during the second wave of the epidemic, in April and May 1949 The incubation period varied from eight to twenty-one days A prodromal stage with weakness and discomfort for two and rarely for three to six days was followed by rapid rise of temperature, up to 104 F, continuing for five to ten days Lysis occurred within three to five days Relative bradycardia and pronounced hypotonia were frequently observed Lymphocytosis up to 60 and 80 per cent with a normal total leukocyte count was a noteworthy observation There was a prolonged convalescence period A cell increase in the cerebrospinal fluid associated with pyramidal symptoms was observed in a single instance only These observations and the occasional instances of cervical pain with slightly positive Brudzinski and Kernig signs are manifestations of the neurotropic characteristics of Rickettsia burnetii Complement fixation tests performed in 2 different laboratories in the United States were positive, while those performed in a Swiss laboratory were negative. Animal experiments demonstrated that the causative agent could be transmitted to guinea pigs with the fluoride-blood of a patient with recent fever Immunity experiments were likewise positive Sulfonamide compounds and penicillin proved ineffective. All patients recovered except 1 patient, aged 66, who died from heart failure. Prognosis as a rule is favorable

Minerva Medica, Turin

40 751-774 (Nov 24) 1949 Partial Index

*Fatal Toxic Encephalitis Due to Streptomycin D Campanacci —p 751

Fatal Toxic Encephalitis Due to Streptomycin —Campanacci reports a 35 year old woman who was receiving intramuscular injections of streptomycin for the treatment of pleurisy She received 1 Gm of the drug daily in three fractional doses for nine consecutive days Symptoms of acute encephalitis appeared on the tenth day, one hour after administration of the first dose The patient died three days later This is the second case of fatal encephalitis caused by streptomycin observed by the author Both patients complained three or four days before the appearance of encephalitis of nausea, vomiting, dizziness, noises, fatigue and depression The neurotropic effects of the drug are particularly likely to manifest themselves in persons with renal or hepatic insufficiency and in patients who had received penicillin or sulfanilamide a few weeks before the administration of streptomycin The appearance of mild toxic symptoms which indicate nervous intoxication is an indication for discontinuation of streptomycin and immediate administration of dextrose in large doses, of vitamins B and C and cardiac tonics Streptomycin therapy in the course of penicillin or sulfanilamide therapy is not desirable except where the combination of the two is definitely indicated

Revista Brasileira de Medicina, Rio de Janeiro

6 *727-782* (Nov) 1949 Partial Index

*Indications for Shock Therapy J Leme Lopes and L Robalinho Cavalcanti —p 727

Indications for Shock Therapy —According to Leme Lopes and Robalinho Cavalcanti convulsion therapy is indicated in the melancholia type of maniac-depressive psychosis, in involutionary melancholia and in the depressive states of presenile psychoses Electroshock should be used preferably, except in the depressions of presenile psychoses, in which pentamethylenetetrazol (metrazol®) has the advantage of being a convulsant agent and also a powerful cardiovascular drug Insulin therapy is indicated in the treatment of schizophrenia If it does not produce favorable results, it should be combined with convulsant therapy Shock therapy is contraindicated in psychoneuroses

Ugeskrift for Laeger, Copenhagen

111 1443-1466 (Dec 22) 1949

*Diplomycin A New Antibiotic, Preliminary Report B Viking —p 1443

Lesion Befalling Lumberjacks O Raagaard —p 1450

Isolation of Three Virus Strains of Coxsackie Group from Patients with Meningeal Symptoms Preliminary Report H von Magnus —p 1451

Diplomycin, a New Antibiotic —Viking reports that since July 1949 diplomycin, a component derived from a Diplococcus isolated by Noster in 1945, has been used in the surgical clinic of Aarhus Kommunehospital in the treatment of 150 patients with different infectious disorders Diplomycin exerts a pronounced antibacterial action on gram-positive and gram-negative micro-organisms and on tubercle bacilli The antibiotic effect is ascribed to secretion products of the Diplococcus Bacteria do not become resistant to diplomycin It is effective against bacteria which have become resistant to penicillin and streptomycin Its toxicity is slight Applied in ointment, diplomycin exerted a notable effect on chronic ulcers of the leg and other localized infections The clinical effect of intravenous injections of diplomycin filtrates in infections such as abscesses, mastitis and osteomyelitis was often equal to that attained with penicillin In Bacillus coli infections of the urinary tract diplomycin was sometimes as effective as streptomycin and sometimes superior to it, without the latter's grave side effects The results of tests of diplomycin in the treatment of pulmonary tuberculosis are said to be promising

Book Notices

THE REVIEWS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES AND DO NOT REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED

An Introduction to the Study of Experimental Medicine By Claude Bernard Translated by Henry Copley Greene A M With an Introduction by Lawrence J Henderson Professor of Biological Chemistry Harvard University Boston Cloth $3 Pp 226 Henry Schuman Inc Publishers 20 E 70th St New York 21 1949

This book was written by Bernard at that period of his scientific career when grouping of facts and theorizing began to take precedence over noting of details Bernard's outlook in this book is biologic and philosophic. Medicine has passed through the empiric, the systematic, the nosologic and the morphologic stages and has now entered the experimental stage Bernard envisioned physiology as the foundation of experimental medicine and a larger part of biology He was superior to his teacher Magendie, as well as to the great Bichat, according to Paul Bert, his pupil and successor to the chair of general physiology at Sorbonne, because he was aware from the beginning of the endless multiplicity of unknown data in physiology and their subordination to the general laws of matter and their obedience to the experimental method "If a comparison were required to express my idea of science of life," says Claude Bernard, "I should say that it is a superb and dazzlingly lighted hall which may be reached only by passing through a long and ghastly kitchen"

Part 1 of the book deals with experimental reasoning "The object of the experimental method is to transform an a priori conception, based on an intuition or a vague feeling about the nature of things into an a posteriori interpretation founded on the experimental study of phenomena" "The freedom which experimenters maintain is founded on philosophic doubt" Further, Claude Bernard states "in scientific education, it is very important to differentiate between determinism, which is the absolute principle of science, and theories, which are only relative principles to which we should assign but temporary value in the search for truth"

Part 2 deals with experimentation with living beings The idea expressed in this chapter is that there never will be a science of medicine as long as the explanation of pathologic and the explanation of normal, vital phenomena are separated

In part 3 the author discusses application of the experimental method to the study of vital phenomena. This is probably the most interesting part of the book The author describes some of his own experiments solely for the purpose of demonstrating the ways of experimentation Among the experiments cited are those of the study of the curare poisoning carbon monoxide poisoning, the epochal discovery of animal glycogenesis and the production of artificial diabetes in animals by puncture of the floor of the fourth ventricle

The place of Claude Bernard in physiology is too well known to require comment The volume belongs with the classics in medical and biologic literature. The philosophy expounded here is the very embodiment of the credo of the experimenter The volume should be included in the education of the medical student and in the library of every practitioner of medicine

Prinzipien des Lebendigen Eine Studie Von O Eichler Half cloth 8 40 marks Pp 99 with 8 illustrations Georg Thieme Diemershaldenstrasse 47 (14a) Stuttgart O Agents for U S A Grune & Stratton Inc 381 4th Ave New York 10 1949

This book offers a discussion of 'What is Life ' in the light of recent data of physics, chemistry and cytology The author writes with an excellent understanding of these subjects and the result is both scholarly and inspiring The author finds himself obliged to use many semantically treacherous words like 'sick,' 'precancerous and 'disharmony (page 67), but his epilogue (page 99) indicates that he is aware of the dangers involved The book is a significant contribution to philosophy and general biology

Recent Progress in Hormone Research The Proceedings of the Laurentian Hormone Conference Volume IV Edited by Gregory Pincus Committee on Arrangements R W Bates et al Cloth $8 80 Pp 529 with illustrations Academic Press Inc 125 E 23rd St New York 10 1949

This volume of an important series of contributions on endocrine physiology contains the papers and discussions presented at the Laurentian Hormone Conference held at Franconia, N H, in September 1948 The same high standards that have characterized the previous volumes in this series are maintained in the present volume

The first section, dealing with hormone metabolism, consists of five papers, one a previously unpublished paper presented at the 1944 conference, on the metabolism of progesterone, estrogens and androgens G F Marrian ably discusses conversion of progesterone into pregnanediol His work indicates that only a small proportion of administered progesterone is excreted in the urine as pregnanediol He suggests lines of attack for determining the metabolic fate of the major fraction of progesterone

Heard and Saffran consider the various avenues of excretion of estrogens, pointing out the importance of biliary and intestinal excretion Although their technic of using radiohalogenated estrogens may be open to question, their methods and data are of considerable interest Samuels similarly considers the metabolism of androgens, particularly by the liver, and shows that the liver contains enzymes capable of converting testosterone into compounds not containing an unsaturated ketone structure or a ketonic group on carbon-17 He believes that the formation of 17-kestosteroids is an intermediary step in at least one metabolic pathway

Of particular interest to clinicians is Segaloff's discussion of the activity and metabolism of estrogens He points out forcefully the inadequacy of estimations of estrogenic potency on the basis of control of menopausal symptoms

The second section of the volume includes five papers on the role of hormones in tissue and body metabolism These papers are of great importance, since considerable light is thrown on the mechanism of action of adrenal cortex steroids, thus offering clues to explain their effects in rheumatoid disease and other chronic metabolic disorders The problem of antihormones is discussed briefly, and it is pointed out that prolonged administration of steroids does not lead to antihormone formation Those substances producing antihormones are generally of a protein nature, i e, pituitary hormones, insulin and possibly parathyroid hormone Of particular importance to clinicians using cortisone and pituitary adrenocorticotropic hormone (ACTH) is the paper by Thorn and Forsham on metabolic changes in man following adrenal and pituitary hormone administration

An intriguing section on neurohumeral-hypothalamic relationships contains three papers of interest to the endocrinologist and the neuropsychiatrist The discussion of adrenal function in mental disease by Pincus, Hoagland, Freeman and Elmadjian throws considerable light on the bizarre mental disturbances seen after prolonged administration of cortisone and ACTH Of great interest are the data suggesting that certain patients with schizophrenia may have a block to adrenal cortex responsivity because of a lack of normal central nervous stimulation as a result of stress, a lack of pituitary activation or a failure of adrenal cortex secretion They suggest interesting lines of investigation to elucidate this problem

The last section of the volume is devoted to thyroid physiology and function Extensive use of radioactive iodine has aided materially in determining the precise metabolic pathways of iodine and thyroid hormone

This volume, like its predecessors, is unique in presenting the lengthy discussions following each formal paper These discussions serve to amplify and extend the data in the formal papers and the discussants are all well qualified in the fundamental aspects of endocrinology These annual volumes should be read by every worker in the field of endocrinology whether he is interested in fundamental laboratory investigations or in the clinical aspects of endocrine disease With the growing recognition of the role of hormones in mental disturbances chronic diseases and metabolic disorders internists, neuropsychiatrists and pediatricians will find much useful information in these carefully edited reports

Vitamins and Hormones Advances in Research and Applications. Volume VII *Edited by Robert S Harris Professor of Biochemistry of Nutrition, Massachusetts Institute of Technology, Cambridge, Mass and Kenneth V Thimann Professor of Plant Physiology, Harvard University, Cambridge, Mass* Cloth $7 80 Pp 488, with illustrations Academic Press Inc., Publishers 125 E 23rd St, New York 10, 1949

The seventh annual volume of this series of reviews on selected topics in vitamin and endocrine research follows the pattern of previous editions As in any book in which the various chapters are contributed by different authors, the articles are variable in quality On the whole, however, the subjects are presented adequately and fairly

The first review deals with the controversial subject of vitamin P The authors open their discussion by defining what is meant by capillary permeability and capillary resistance, a lack of appreciation of the difference between these concepts has been responsible for much confusing and uncritical work The chemistry and pharmacology of the various substances having vitamin P activity—citrin, hesperidin and the flavonoids —are discussed Although the authors are inclined to overemphasize the clinical importance of vitamin P, they have performed a useful service in bringing together in a comprehensive article the world's literature on the subject

The second review, on stereoisomeric provitamins A, deals largely with chemical and bioassay technics for identification and for following the conversion of the provitamins into the active vitamin A This review will be of interest chiefly to biochemists

The physiology of thiamine is the subject of an extended discussion in the third article in this volume The complex relationships between carboxylase, cocarboxylase, thiamine and protein, fat and carbohydrate metabolism are ably elucidated Much of this work is still speculative, but the author advances an attractive hypothesis regarding the role of thiamine in physiologic processes which meets the facts as they are now known

Nicotinic acid in amino acid metabolism, particularly in its relation to tryptophane, is presented in a short review Further insight into the pathologic physiology of pellagra is afforded by this discussion

The review on diet and aging is an intriguing and stimulating presentation of a subject of great importance The evidence of the role of diet in the aging process is controversial and, at times, contradictory This review is a masterly presentation of evidence on all sides of this question and critical analysis Anyone interested in the subject of geriatrics can read it with profit

The review on the vitamin requirements of the growing rat will be of interest to workers in experimental nutrition, but most of the material reviewed should be familiar to them How applicable these studies are to human nutrition appears to be problematic A companion review on the vitamin requirements of the guinea pig is also presented

The second section of the book, dealing with hormones, begins with a review on the chemistry of the gonadotropic hormones The question of nomenclature is adequately discussed, and it is recommended that the old term "leuteotropic hormone" be reserved for the lactogenic hormone, the latter term being preferable The term "luteinizing hormone" would be better replaced by "interstitial-cell-stimulating hormone," since, in addition to initiating the formation of the corpus luteum, it also stimulates seminiferous tubules and interstitial cells in the male The chemical nature and physiologic action of the gonadotropins from various sources form the principal topic of review A special review on the chemistry and physiology of the lactogenic hormone follows the more general review

The highlight of the whole volume is the splendid review of infra-red spectrometry applied to steroid structure and metabolism, prepared by Jones and Dobriner In a logical manner, the stereochemistry of the steroids is discussed with extraordinary clarity The highly complex problem of the relationship of structure to infra-red spectrometry is discussed with such clearness and with such admirable use of structural formulae as to make this review a suitable textbook for all workers in this field

A brief review of alloxan diabetes is adequate to cover this special subject A short review on the chemistry of the hormones of the posterior lobe of the pituitary gland is followed by a longer one on the actions of these hormones and their effect on the circulation and the secretion of urine. A major portion of the discussion deals with the circulatory action of these agents, something that has long needed an adequate review

Although both the vitamins and the hormones are metabolic agents, it seems curious to include reviews on these two subjects in one volume In general, those interested in the vitamins will not be particularly interested in the reviews on hormones, and vice versa Since both subjects are developing rapidly, it might be wiser to separate these reviews into two volumes and provide wider coverage of the subject matter Notwithstanding this criticism these annual volumes are well worth study by workers in these fields

Oral Bacterial Infection Diagnosis and Treatment By Lyon P Strean, M Sc Ph D, D D S Director of Research Novocol Chemical Mfg Co, Inc, Brooklyn N Y *Cloth* $5 50 Pp 185, with 57 illustrations *Dental Items of Interest Publishing Company, Inc* 2911 23 Atlantic Ave Brooklyn 7 N Y, Henry Kimpton 26 Bloomsbury Way London, W C 1, 1949

The discussions of the various bacterial groups and infections which are covered in this book are incomplete and frequently marred by erroneous or obsolete information Few periodontists will agree with the statements to the effect that Vincent's infection is transmitted from person to person by use of infected towels, toothbrushes, pipes or by kissing or that children from 2 to 10 years and adults from 18 to 25 years are most susceptible to the disease Actually, most of the cases of so-called Vincent's disease found in children have been demonstrated, in recent years, to be forms of herpetic stomatitis In view of the advances in chemotherapy, it seems improbable that many internists will agree with the author's opinion that in most cases of actinomycosis the termination is fatal, nor will they agree with the view that "the common cold usually has the pneumococcus associated with it as a secondary invader"

In the brief chapter on antibiotics, many inaccuracies will be noted by even the casual reader In discussing the peanut oil, beeswax, penicillin preparations, the author states, "one intramuscular injection of this mixture, containing twenty thousand units, will maintain a satisfactory blood level for twenty-four hours"

In the paragraph devoted to premedication of dental patients for the control of bacteremia the author suggests intramuscular injection of 100,000 units of penicillin, six to twelve hours before extraction and a similar dose administered twenty-four hours after the tooth has been removed If the author is referring to crystalline penicillin, it would be eliminated well before the expiration of twelve hours after administration, and, if he refers to procaine penicillin or oil wax penicillin preparations, the dosage is inadequate The purpose of premedication with penicillin is to produce a high and effective blood level of the antibiotic at the time of extraction and for 24 to 48 hours after the extraction

In this same connection it is stated "In a period of forty-eight hours, beginning twelve hours before extraction, a total of ninety milligrams of sulfa drug should be consumed" Aside from the fact that the proposed sulfonamide is not identified, it is difficult to see what value 90 mg of any member of this group could possibly have over a 48 hour period

In spite of the fact that lesions of the herpetic group constitute an important segment of oral pathology, the discussion covering them is limited to eight lines The relationship between herpes simplex and aphthous ulcers is ignored, and the fact that the lesions of herpes zoster are confined to an area corresponding to a sensory nerve distribution is not made apparent The only suggestion for therapy is the unsubstantiated statement that "large doses of vitamin B complex have proved very helpful in the treatment of herpes"

These examples are cited to demonstrate the careless and incomplete handling of factual material which is prevalent throughout the book. In view of these inadequacies, it seems improbable that this publication will serve a useful purpose in either the medical or dental fields

Multi Enzyme Systems By Malcolm Dixon Ph D Sc D F R S Four Special Lectures Given to University College London in May 1948 Cloth $1 75 Pp 103 with illustrations Cambridge University Press Bentley House 200 Euston Rd London N W 1 American Branch 51 Madison Ave New York 10 1949

The book is not a catalog of the various enzymes isolated their functions in metabolism and their properties but deals with two particular multienzyme systems and their interrelationships The two systems are the hydrogen transfer or energy-generating system and the phosphate transfer or energy-utilizing system

The first chapter after a brief introduction dealing with certain properties common to all enzymes, is devoted to the manner in which multiple enzyme systems function to generate store transfer and utilize energy The kinetics of enzyme reactions are also discussed Various enzyme catalyzed reactions are classified as to the mechanism by which they occur

The second lecture is concerned with enzyme systems and the mechanism involved in the transfer of energy in living matter by 'energized bonds Various examples are again cited to illustrate the reaction mechanism proposed

The third and fourth lectures contain discussions of factors determining the direction and the extent of enzyme catalyzed reactions—phenomena which depend on substrate In the third chapter the author proposes and suggests a method for the arrangement of the various individual hydrogen transfer reactions in the multienzyme dehydrogenase system depending on the oxidation reduction potential of each reaction This he calls the rH scale of oxidation reduction—a measure of reducing intensity The methods of measurement of rH factors affecting the value of rH and rules for obtaining useful information from rH values are discussed The first part of the last chapter deals with applications of rH data to hydrogen transfer multienzyme systems The remainder of the chapter is devoted to the phosphate transfer sytsem and a discussion of the feasibility of constructing an rP scale depending on the intensity of the various phosphorylation reactions

The book has a brief index but does not contain literature references since the material for the lectures was gathered from so many sources that it seemed impractical This does not detract much from the book, since it was not prepared to be used as a reference book but rather to present an over all picture and some new ideas on multienzyme sytsems It is interesting reading and contains much previously unpublished material

The Biology of Mental Defect By Lionel S Penrose M A M D With a Preface by Professor J B S Haldane F R S Cloth $4 75 Pp 28 with 18 illustrations Grune & Stratton Inc 381 Fourth Avenue New York 16 1949

The subject of mental defects is of wide scientific interest and of economic and social importance This book presents in compressed form a mass of pertinent data concerned primarily with the scientific biologic area The first half deals with incidence classifications physical stigmas fertility and causes As for incidence careful study of the number of mentally defective persons in the community and in institutions in England indicates that they form 3 1 per cent of the country s population Applied to the United States this would give 4 3 million approximately three fourths of these feebleminded and one fourth imbeciles or idiots a truly serious burden The principal discussion centers about the genetics of defect and the relative importance of nature and nurture The second half details briefly the known facts about various brain and mental disorders those considered respectively as dominant recessive or sex linked and those environmentally conditioned A reader understanding of genetic terminology and formulas is assumed The final short chapter is on treatment The statistical data are taken principally from English mental institutions The excellent list of references comprises some 500 items

The presentation is precise orderly unemotional judicial and provocative of thought and debate Perhaps of greatest interest is the discussion of the genetics of intelligence The author presents data proving that genes do play an important part though not an exclusive one in determining intelligence level Thus the problem of the threatened decline in intelligence is a real one (page 121) Because persons with below average intelligence have the largest families Burt has predicted an intelligence quotient decline of 2 points per generation The author, unlike the Spartan ruler Lycurgas, sees no social advantage in allowing hopeless idiots to perish With respect to the predicted decline in intelligence, he takes a dim view of possible gains from eugenics Indeed, he states that the groups of better intelligence "not only depend on the less scholastically inclined for manual labor but for replenishment of genic material ' The book ends with this statement "The genes carried by the fertile scholastically retarded may be just as valuable to the human race in the long run as those carried by people of high intellectual capacity ' However, a world faced with a plethora of people and of problems does not need more but better people and the author does not make clear what valuable genes belong especially to those of low intelligence

The young-minded J B S Haldane, in his preface, attempts to correct a somewhat conservative and do nothing attitude of the book by urging that discoveries in prevention or treatment now undreamed of might arise from intensive investigations As regards ethics he remarks, "Has a hopeless idiot the right to life and care, though he or she is not a rational being nor likely to become one? If so, has a chimpanzee with considerably greater intelligence similar rights and if not why not? If not where are we to draw the line? Haldane s belief that the book should be read by physicians, social workers and members of Parliament is well grounded

Applied Anatomy and Kinesiology The Mechanism of Muscular Movement. By Wilbur Pardon Bowen M S Sixth edition revised by Henry A Stone M S Associate Supervisor Department of Physical Education University of California Berkeley California Cloth $4 75 Pp 390 with 234 illustrations Lea & Febiger 600 S Washington Sq Philadelphia 6 1949

The fact that this text has gone through so many revisions since its original publication in 1917 is presumably good evidence that it has pleased the readers for whom it was obviously designed namely students of physical education Part I consists of short general discussions of the skeleton, muscles in general the nervous system and the mechanical principles of muscular action and a chapter on the complex chemistry of muscle contraction Parts II, III and IV discuss the muscles of the limbs and trunk and the mechanism of breathing In these sections a short discussion of the movements of a part of the body is followed by brief statements concerning the origin, insertion and actions of the individual muscles concerned in moving this part The anatomy so presented is limited but probably adequate for the use for which this book was intended Apparently these parts of the book have undergone the least revision and this is reflected in the curious use of a few pre-BNA terms such as extensor ossis metacarpi pollicis for abductor pollicis longus the writer apparently believing that these are the modern and preferred terms Part V is primarily a tabular resume of the three preceding parts Part VI, considerably more thorough discusses posture, walking, running and jumping and the technic of numerous sports and everyday occupations with an analysis of the muscles concerned in the various movements The anatomic part of this text is for the most part adequately illustrated with figures taken from textbooks of anatomy and with photographs showing muscles in action, and the portion on games and sports with photographs of actual games or participants

Major Problems of United States Foreign Policy 1949 1950 Prepared by the Staff of The International Studies Group of the Brookings Institution Cloth. $3 Pp 492 with 14 maps and charts The Brookings Institution 722 Jackson Place N W Washington 6 D C 1949

This volume is the third in a series of annual publications on problems of United States foreign policy which constitutes a part of The Brookings Institution s broad program of research and education in the field of international relations This program inaugurated in 1946 is being carried out by the institution s International Studies Group under the direction of Leo Pasvolsky

In undertaking the program The Brookings Institution has two objectives first to aid in the development of an informed and responsible American public opinion on foreign policy and second to aid in the training of the increasing number of American specialists in international relations that are required today in government in business and in other agencies operating abroad The method used is analysis and interpretation of the major problems that arise in this country's foreign relations in a manner similar to that used by government officials in dealing with policy issues Since such specialists must come primarily from the colleges and universities of the country, it is clear that if students are given some training in the policy-making process while they are perfecting their general and specialized knowledge they will be more adequately prepared for participation in the conduct of foreign relations

The technic employed in this volume is based on what may be termed the problem approach In part I there is a brief description of the world scene—political, economic and military—in the summer of 1949 and an analysis of the position of the United States in world affairs Part II reviews the main problems of foreign policy with relation to specific problems of several regions, such as Indonesia, Europe and Russia The book closes with a discussion of three specific problems, American assistance to underdeveloped areas, the problem of Indonesia and that of European economic integration

Pathology and Surgery of Thyroid Disease By Joseph L DeCourcy, M D Director, DeCourcy Clinic, Cincinnati, Ohio, and Cornelius B DeCourcy, M D Cloth Price, $10 Pp 476 with 94 illustrations Charles C Thomas, Publisher 301-327 E Lawrence Ave, Springfield Ill, 1949

In their thirty years of experience with disease of the thyroid, the authors have evidently arrived at some sound ideas regarding the function and pathology of this organ This they have presented in a brief monograph, which contains a good many references from the literature A vast amount has been written about goiter, much of it is no longer valid The role of iodine is being studied anew with the aid of radioactive isotopes The addition of new drugs in the management of hyperthyroidism and the diminished frequency of goiter have decreased the need for surgical treatment Emphasis is now being placed on cancer of the thyroid This subject is well presented The relationship of aberrant thyroid tissue and benign metastasizing goiter is described according to modern opinion The treatment of cancer of the thyroid is difficult, but the management outlined is useful The value in carcinoma of the radioactive iodine is correctly stated to be doubtful The use of the isotope as a tracer and in hyperthyroidism is another matter and will undoubtedly increase The illustrations both of pathologic specimens and of surgical technics are excellent This is a fine review of the status of our knowledge about the thyroid, with a rational opinion on a controversial and interesting subject

Hematin Compounds and Bile Pigments Their Constitution Metabolism and Function By R Lemberg, Dr Phil, and J W Legge M Sc Cloth $15 Pp 749 Interscience Publishers Inc., 215 4th Ave, New York 3 2a Southampton Row, London, W C 1, 1949

There has been no single book in the English language on porphyrin compounds and bile pigments to which the interested student and worker could refer The closest approach has been reviews of certain aspects of the broad field This volume fills the gap adequately It is written by men who have had extensive experience in this field of study, and the subject matter was reviewed and checked by many international authorities before publication

The authors have attempted to summarize the present knowledge for students and to present a reference source for research workers and those interested in detailed information The emphasis is primarily on biochemical data, but much of it is of interest to clinicians and pathologists

The introductory chapter is a brief review of the biologic significance, chemical structure, variability and metabolism of pyrrole pigments The pyrroles are the basic units from which porphyrins and bile pigments are formed This is followed by a fairly detailed discussion of the physical chemical methods of investigation There are two chapters on the nomenclature and detailed chemistry of porphyrins and bile pigments These preface an extensive review of hematin compounds in general and hemoglobin in particular, including the comparative biochemistry and physiology of the latter This is followed by chapters on hematin enzymes, mechanisms of bile pigment formation, hemoglobin catabolism in its breakdown to bile pigments, hematin and porphyrins in normal and pathologic conditions and the formation of hemoglobin and synthesis of porphyrins in the animal body The final chapter is a brief discussion of the pyrrole pigments in evolution

The bibliography carries over 3,000 references The index is complete and adequately cross referenced Even if there were available other books in English on this subject, this volume would rate as a necessary addition to the library of interested workers

An Introduction to Clinical Surgery Surgical Wherefores and Therefores, a Reasoned Explanation of Surgical Note Taking By Charles F M Saint, C B E, M D, M S Second edition Cloth 45s Pp 383 with 373 illustrations Published for The Post-Graduate Press by Juta & Co, Ltd, Cape Town and Johannesburg, Agents in U S A Stechert Hafner, Inc, 31 E 10th St, New York 3, 1949

This first edition of this book was published in 1945 This edition differs from the first chiefly in the addition of numerous clinical photographs and diagrams, but the text also has been revised

The subtitle is accurately descriptive of its point of view and content Its author says one of his main objects is to sidestep the "parrot" type of acquiring knowledge, which he calls "psittacism," and provide knowledge based on reasoned thinking, which is much more lasting and permanent Accordingly he quotes no authorities and provides no bibliography but, reasoning from the basic medical sciences, chiefly anatomy, physiology, pathology, and biochemistry, he adds the consensus of clinical technic as developed in his own experience to make the acquisition of diagnostic insight and skill as easy and natural as possible What emerges is a handy-sized volume of text in the style of Zachary Cope's "The Early Diagnosis of the Acute Abdomen" or Hamilton Bailey's "Demonstrations of Physical Signs in Clinical Surgery," both of which have had immense student appeal in this country

Although the chief emphasis is where it belongs, on the significance of enlightened history taking, inspection, palpation, percussion and auscultation, adequate but pithy accounts of the use of modern diagnostic instruments and technics are given The illustrations add greatly to the value of the text because they are generally well chosen and executed, though some show advanced lesions of the spectacular "museum" type and others provide a "foreign flavor"

The chief appeal of the book will undoubtedly be for students seeing surgical cases for the first time, and they will undoubtedly want to take the book with them to the clinic and the bedside, a use for which it is admirably suited Interns, house officers and practicing surgeons may not wish to consult the volume so openly, because it is obviously elementary, but they will profit by having it around for frequent consultation because it is both informative and readable.

The only nonspecific discussion is in chapters devoted to inflammations, swellings, calculi and fractures Otherwise, the chapters encompass the body by regions and in specific fashion There is a short subject index

Der Arzt in der Krise der Zeit Von Medizinalrat Dr Karl Rom Paper 11 Swiss francs Pp 181, with illustrations Franz Deuticke, Helferstorferstrasse 4, Vienna 1 1949

This book reviews the historical, philosophic and practical aspects of the relation of the physician to society Some especially interesting historical material relates to the universities of Innsbruck and Graz The most important parts of the book, however, are those dealing with the organization and operation of plans for public health, group insurance and social security A section headed "Quo vadis medice?" beginning on page 95, contains a description of conditions of medical education and practice in central Europe today and includes a discussion of euthanasia On page 140 there begins a section on the work of the physician under socialized medicine, written with frankness and clarity, problems of training, responsibility and remuneration are discussed, and specimen laws and contracts are quoted These portions deserve translation into English because of their bearing on questions now confronting the people of the United States

Queries and Minor Notes

The answers here published have been prepared by competent authorities They do not however represent the opinions of any official bodies unless specifically stated in the reply Anonymous communications and queries on postal cards will not be noticed Every letter must contain the writer s name and address but these will be omitted on request

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IMMUNIZATIONS BEFORE GOING TO EUROPE

To the Editor —What immunization do you consider necessary for a trip to Italy France England and Germany? Would you advise a series of typhoid inoculations in a woman 55 who had typhoid as a child? Also is the intradermal typhoid immunization as good as the subcutaneous?

Herbert H Von Gal M D Brewster N Y

Answer —For the trip proposed it is advisable to establish the absence of susceptibility to or to immunize against smallpox, typhoid, typhus and diphtheria Inoculations for immunization against typhoid should not be necessary for a person who has had the disease Intracutaneous injections of typhoid vaccine will produce immunity but it is generally believed that the subcutaneous route should be used For such an extended journey as the one contemplated, protection against typhus also seems advisable

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RECURRENT PAPILLOMA OF LARYNX

To the Editor —A boy 4½ years of age has been treated for multiple papillomas of the larynx for two and one half years and has been under my care for the last year and a half A tracheotomy tube has been used constantly About six months ago he was taken to Stanford University Hospital where local applications of podophyllin solution were applied to the larynx. The lesions regressed rapidly and treatment was continued for about six weeks after he returned here However, as soon as the treatment was stopped the lesions recurred About one year ago another patch of papillomas developed at the bifurcation of the trachea and the growth seems to be spreading downward It is now necessary to do bronchoscopy every four to six weeks to keep the airway clear Authorities seem to agree that multiple papillomas of the larynx disappear at puberty if the child can be kept alive that long What status has male hormone therapy for this condition and what are the underlying factors that cause multiple papillomas? Would it be advisable to try hormone therapy on a child 4½ years of age and if so what dosage is suggested? He seems to be healthy otherwise

Wells C Carey M D Eureka Calif

Answer —The etiology of papilloma of the larynx is not definitely known One factor that is known is its persistent recurrence in spite of all methods of treatment that are used The treatment of this condition by sex hormones has not given satisfactory results Removal of the papillomatous tissue under direct laryngoscopy by proper forceps appears to be the most satisfactory method available at present. Irradiation in children should never be considered because of the delicate nature of the laryngeal structures and the possibility of permanent trauma following the irradiation Tracheotomy in these cases helps prevent sudden closure of the airway and consequent asphyxia, it also may have a definite beneficial effect in inhibiting the growth of papillomatous tissue by putting at rest the laryngeal structures Several cases have been followed in which definite improvement, i e, lessening of recurrence of papillomatous tissue was noted after tracheotomy

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PERIANAL LEUKOPLAKIA

To the Editor —A white man of 74 years has a chronic ulcer extending anteriorly from the mucocutaneous border of the anus This was excised five years ago and recurred one year ago Biopsy of the ulcer six months ago showed leukoplakia The ulcer almost healed after the biopsy but is now about as large as it was a year ago The zone of leukoplakia completely surrounds the anus although there is only one area of chronic ulceration

M D Wisconsin

Answer —While leukoplakia involves the mucosa of the rectum beginning at the mucocutaneous line in relatively few patients treatment including excision and radiation is not completely successful This lesion in this location has not been known to develop into a carcinoma Ulceration does occur and in at least one instance a papillary tumor occurred, which however, was benign Excision would seem to be the safest treatment of a leukoplakia that had ulceration in it or from which a papillary growth had developed If the zone of leukoplakia completely surrounds the anal ring it can be excised and then the mucosa of the bowel can be excised and resutured to the mucocutaneous line

DEATH FOLLOWING NARCOTIC ADDICTION

To the Editor —I have been called to testify in a case of death where there seems to be some doubt whether the patient died as a result of voluntary withdrawal after a long addiction to codiene and meperidine hydrochloride (demerol hydrochloride®) or whether she died as a result of a large dose of morphine (possibly impure) after ten to fourteen days of partial withdrawal She was supposed to be intolerant to morphine and the relatives charge that she died from an overdose of morphine or as a result of an allergic reaction to morphine It is not known whether the patient received morphine just prior to her death but the toxicologist reports that traces of the alkaloids were found two years after death and after she was embalmed The patient died from a cardiac complication about seven hours after the morphine was supposed to have been given

J J Johnson Jr M D Las Vegas N Mex

Answer.—The data contained in the letter are not sufficient to permit a definitive answer The dose of morphine received by the patient is not stated There is no information about other medicaments that this patient received on the day when the morphine was administered There is no statement of the quantity of morphine found at the autopsy other than that traces were present, and there is no information with regard to any pathologic changes found at postmortem examination

Unless a narcotic addict is suffering from some serious organic disease, death during withdrawal is unusual even after abrupt and complete withdrawal of morphine. Death from withdrawal from either codeine or meperidine or both would be unusual, since the abstinence syndrome from both drugs is mild The letter also states that the patient had had a "partial withdrawal" of ten to fourteen days It is assumed that this means that the dosage of codeine and meperidine had been gradually reduced but not completely discontinued over that period of time. In such circumstances the intensity of the abstinence syndrome would be so mild that it would be difficult to attribute the death to withdrawal

The patient's symptoms prior to death were not those usually seen in acute morphine intoxication, in which coma and respiratory depression are the outstanding features It therefore seems unlikely that the death was due to acute morphine poisoning According to Bieter and Hirsch (*Ann New York Acad Sc* **51** 137, 1948) untoward circulatory reactions occasionally follow administration of therapeutic doses of morphine methadone and meperidine Such reactions are comparatively rare with morphine and represent the normal risk inherent in the administration of this drug

The most extensive reference on poisoning by morphine can be found in the book, "The Pharmacology of the Opium Alkaloids," by H Krueger, N B Eddy and M Sumwalt (*Pub Health Rep Supp* no 165) This book is probably available in the libraries of all medical schools

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FETAL DEATH FOLLOWING TETANUS ANTITOXIN GIVEN TO MOTHER

To the Editor —On the morning of Oct 2 1949 I delivered a white primipara aged 20 of a stillborn term fetus The baby weighed 6 pounds 5 ounces (2 863 Gm) and did not seem to be deformed in any way The cord was of average length was not knotted or around the baby's neck The baby gave the appearance of having been dead at least forty-eight hours The mother had been normal during her antepartum period She is type A Rh positive Her urine and blood pressure were normal, and her weight gain was 16 pounds (7 3 Kg) At her last antepartum check three days before delivery the head was low the baby active and fetal heart tones of 140 per minute were heard in the left lower abdominal quadrant She was seen that evening with a puncture wound on her right sole from stepping on a nail I gave her 1 500 units of tetanus antitoxin after she exhibited no reaction from her intradermal test I waited twenty minutes to read the test She began labor about 4 p m October 1 and was delivered at 1 25 a m October 2 She felt no life the morning after receiving the antitoxin injection Was tetanus antitoxin the cause of death in this case? R. G Neher M D Shoshone Idaho

Answer —The history fails to supply the necropsy observations of the stillborn fetus as well as other important data which makes it difficult if not impossible, to predicate any suggestions concerning the cause of death In the absence of a necropsy record no valid justification can be invoked to incriminate the injection of tetanus antitoxin as the cause of fetal death In this respect it may be intimated that the negative skin test is of significance, although such an observation does not exclude the possibility of systemic sensitivity As already stated a negative skin test merely means that fixed antibodies were not detected in the skin In view of the information presented it is the joint opinion of a group to which this problem was submitted that no evidence of a convincing character has been offered to incriminate the tetanus antitoxin

Presuming that such a verdict is incorrect one must entertain the following possibilities 1 Primary toxicity of the tetanus antitoxin Such an explanation, while not completely excluded, did not seem plausible 2 Allergic reactions at the uterine or placental sites, causing premature onset of labor pains or abruptio placentae These possibilities do not seem likely because the antigen-antibody reaction occurs only at sites composed of delicate smooth muscle components (terminal bronchioles, small arterioles, pulmonary artery, adrenal vessels, perineural vessels and hepatic venules) A structure, such as the placenta or a gravid uterus, with large vessels, would be too resistant to vascular spasm 3 Fetal anaphylaxis with spasm of the adrenal vessels, the hepatic venules or the pulmonary artery If one accepts the possibility of fetal anaphylaxis in this case, it remains to explain the different responses of mother and fetus to the same potentially noxious agent, i e, tetanus antitoxin The following facts may be cited in reference to an elucidation of this problem 1 In smallpox, mother and fetus may react in different fashions (Pregnant women in whom smallpox infection is absent or who are immune, through vaccination or revaccination, or who had mild attacks without any rash, may give birth to an infant with typical variola eruptions or scars of smallpox) 2 The quantitative factors, in respect to antibody (reagin) and antigen are different for the mother and fetus because of differences in respective body sizes

In view of the circumstances described, it would appear desirable to induce a state of active immunity in the mother under consideration In order to avoid any unjustified criticism, this procedure should be instituted during a period when the patient is not pregnant The dose of 1,500 units in this case was inadequate The present trend is to employ prophylactic doses of 5,000 to 20,000 units of tetanus antitoxin

Reference

Ratner, B Allergy, Anaphylaxis and Immunotherapy, Baltimore Williams & Wilkins Company 1943

CHOLESTEROL STONE IN GALLBLADDER

To the Editor —A man aged 44 gives a history of intermittent constipation for ten years (irritable colon type) He has never had nausea or vomiting or decrease in appetite Two months ago as a result of increasing constipation, which lasted about two weeks, he had a roentgenographic examination of the gastrointestinal tract, including barium enema, but it revealed nothing significant Roentgenography of the gallbladder revealed an apparently normal organ except for the presence of a nonopaque calculus After a fatty meal to empty the gallbladder the patient noticed a vague dull, gnawing pain between the shoulder blades which lasted two or three hours Since then he has had a similar pain without nausea within an hour after some meals He has not had loss of weight (165 pounds [74 8 Kg]) His height is 5 feet 9 inches (175 cm) He has some vague epigastric distress especially after heavy meals and when excessive amounts of fats are taken In the past he has been prone to eat large amounts of fats and carbohydrates The foregoing symptoms were not present before the first fatty meal for a roentgenogram Please outline treatment Is there evidence to show that some of these calculi disappear with or without a decrease in fat ingestion or with cholagogues? Do any gastric disturbances follow cholecystectomy?

M D , New York

Answer —It seems evident that this patient has in the gallbladder a solitary cholesterol stone that produces intermittent obstruction and thus interferes somewhat with the emptying of the gallbladder in response to a fatty meal The epigastric distress in all probability arises as a result of contraction of the gallbladder in the presence of temporary obstruction to the cystic duct as a result of the stone Such calculi do not disappear spontaneously, nor are they removed by the use of cholagogues or alterations in the diet Probably this cholesterol stone has appeared in the gallbladder as a result of a metabolic defect rather than infection, however, such stones cause stasis of bile in the gallbladder, and this in turn leads to infection In the biliary passages, as in the urinary passages, natural resistance to infection is due in large part to the tortuosity of the tubular passageway and to the onward and outward flow of secretion Conversely, any factor that interferes with the onward flow of secretion, resulting in stasis, permits the growth of bacteria with subsequent invasion of the wall There are many cases in which a solitary cholesterol stone has remained in the gallbladder for thirty or forty years without seriously interfering with health, but this is not the usual sequence of events As a result of stasis and infection numerous secondary stones composed of calcium bilirubinate become deposited in the gallbladder, with progressive damage to the gallbladder wall, biliary colic and the other sequelae of gallstones In view of the exceedingly small risk of cholecystectomy in the hands of well trained surgeons throughout the United States, this operation is the treatment of choice Cholecystostomy is not indicated in this instance because of the probability of reformation of stones Gastric disturbances seldom follow cholecystectomy for gallstones

PURPURA RHEUMATICA

To the Editor —A white woman, aged 25 and four months pregnant has had a purpuric rash for about a year The rash consists of numerous scattered pale pink to purplish macules, mainly on the feet, ankles and lower part of the legs but at times extending to the thighs Most of the lesions are discrete, but some are confluent in certain areas, notably at pressure areas such as those where shoe straps cross the feet The eruption appears and fades at irregular intervals but in recent months has occurred at intervals of several days On some occasions there has been swelling and tenderness around the ankle joints coincident with the rash There is usually some subjective pain in the areas of the eruption She has had nose bleeds and recently oozing from the dental gingivae Familial history does not elicit any information on the subject There has not been any exposure to drugs or industrial chemicals associated with these lesions Seven months ago, because of a recurrent tender mass in the left lower abdominal quadrant, a laparotomy was performed but nothing of consequence found, apparently the mass disappeared during the preoperative interval She has also consulted an obstetrician and an internist Examination elicited nothing significant except a doubtfully positive tourniquet test Blood studies have revealed normal values for red, white and differential blood cells and hemoglobin content, and normal values for thrombocytes, bleeding, coaggulation time and clot retraction time The eosinophil count on one occasion was 12 per cent The general opinion is that this is a purpura simplex, perhaps with a Schönlein-Henoch factor What is suggested for treatment and investigation?

John W Bickley M D , Waterloo, Iowa

Answer.—The observations described are characteristic of allergic purpura, sometimes called simple purpura, Schonlein's disease or Henoch's purpura When the disease is accompanied with arthralgia it sometimes is called Schönlein's purpura or purpura rheumatica When angioneurotic edema occurs in the bowel, producing the syndrome of partial intestinal obstruction, the condition sometimes is called Henoch's purpura Since there is no history of exposure to drugs, there probably is an allergy to some food or to one of the organisms in the gastrointestinal tract As a rule, these patients do not have any tendency to serious bleeding at operation or delivery A trial of antihistaminic therapy may be worth while Ascorbic acid and rutin are usually given to such patients, but it is doubtful whether there is enough evidence to establish definitely that these medicaments are of value. Even without therapy the chances are excellent that the woman will not have any more troublesome symptoms than those she now has Curative therapy consists in finding the offending food by a daily dietary diary or using elimination diets, one must either eliminate this food or desensitize the patient to it. Treatment by this method usually is more troublesome than the disease, and reassurance may be sufficient

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TABETIC PAINS

To the Editor —I have a male patient 70 years of age who suffers from tabetic pains in his legs Is there anything new for the prevention or lessening of these pains?

M D , Florida

Answer —The treatment of a patient 70 years of age with tabetic pains is not different from the treatment of tabes dorsalis in general The activity of the neurosyphilis first must be ascertained Evaluation can be made only by an examination of the cerebrospinal fluid, including the cell count, globulin content and reaction to the colloidal gold and Wassermann tests Of these, the most important signs of active disease are the cell count and globulin estimation, both simple tests best done by the examiner in his own laboratory Antisyphilitic treatment is indicated if any signs of specific disease are found Even if no activity is demonstrated by this means tabetic pains sometimes may be relieved by this treatment At present treatment with intramuscular injections of penicillin has almost totally replaced former types of medication The results are not much better than when arsphenamine, tryparsamide and malarial or other types of fever therapy were used, but penicillin is much easier to administer, and in most cases treatment is at least equally satisfactory Some authorities favor the simultaneous use of penicillin and the development of malaria infection to induce fever, but, as was recently pointed out results of intramuscular injections of penicillin without fever are similar to or better than those following heat therapy (Dattner B Thomas E W , and deMello, L Treatment of Neurosyphilis, *J A M A* **141** 1260 [Dec 24] 1949) In all cases the active disease as judged by abnormalities in the cerebrospinal fluid should be abolished by penicillin , in about 65 to 85 per cent of the patients lightning pains should be lessened and in some cases eradicated after a full course of either penicillin therapy alone or malaria plus penicillin (Chesney, L P and Reynolds, F W Penicillin in Treatment of Neurosyphilis IV Tabes Dorsalis, *Arch Neurol & Psychiat* **59** 347-359 [March] 1948)

For the few cases of tabes dorsalis with lightning pains that do not respond to either form of therapy, various forms of treatment have been tried Some patients have responded to such simple treatment as small doses of a bismuth compound intramuscularly in courses of six or eight injections on a weekly basis two or more times a year Various anesthetic agents or even distilled water have been injected into the subarachnoid space, usually without more than temporary relief Should the pains be confined to one area for a long period of time so that a spinal root or one or two roots can be identified as the site of the main lesion cutting of these roots is occasionally justified However, such an eventuality is unusually rare and surgical procedures of this type cannot be advised in a patient 70 years of age This opinion too, would apply to sympathectomy and other forms of surgical intervention Dependence should therefore rest on a thorough knowledge of the activity of the process as estimated by a complete examination of the cerebrospinal fluid and the use of penicillin over an appropriate period of time If this form of treatment is not successful malariotherapy may follow, but intrathecal treatment and spinal surgery should be avoided

BURSITIS

To the Editor —Kindly furnish me with a differential diagnosis between bursitis of the shoulder and tearing or avulsion of the subscapularis (the so-called subcapularis syndrome)

M D Pennsylvania

Answer —The distinction between bursitis of the shoulder and tearing or avulsion of the subscapularis tendon or any of the other tendons which make up the rotator cuff (supraspinatus, infraspinatus and teres minor) is one of degree as all these structures form a part of the working mechanism of the joint It is doubtful that any important tearing of any of the tendons that make up the rotator cuff could take place without some degree of bursitis, as the floor of the bursa is in immediate contact with the tendon beneath True bursitis of the shoulder is seldom primary Long before the bursitis becomes clinically evident a process of gradual degeneration has been taking place in the tendons about the shoulder joint Such attrition is brought about by multiple minor traumas with resulting fibrosis and diminution of blood supply This is usually followed by some degree of calcification in the tendon which can be seen roentgenographically Such calcifications may not produce symptoms, and they frequently are found incidentally in roentgenograms of the chest or of the shoulder If, however pain and limitation of motion do occur concomitantly with tendon calcification it means that this calcification is superficial enough to irritate the floor of the bursa or even rupture into it This will produce a rather sudden onset of increased tenderness and lead to alarming pain and disability

With sufficient trauma usually with the arm in abduction and external rotation actual tearing of any of the components of the rotator cuff may occur In relatively minor tears of one portion of the cuff, the other portions may take over the duties and only critical examination can determine which portion has been torn In examining such a shoulder one should visualize the cuff as divided into posterior, superior and anterior segments The anterior segment, if torn, will not be able to stabilize the humerus so as to permit abduction when the arm is externally rotated The superior segment will not be able to act with the arm in a neutral rotatory position, and the posterior segment will be deficient in abduction with the arm in extreme internal rotation If all segments are involved as in complete cuff tear no abduction is possible, because no tendon is left to fit the humerus snugly against the glenoid The writings of E A Codman (Shoulder Rupture of the Supraspinatus Tendon and Other Lesions in or About the Subacromial Bursa Boston Thomas Todd Co, 1934) and H L McLaughlin (Common Shoulder Injuries Diagnosis and Treatment Am J Surg **74** 282 295 1947) clearly outline this problem and these are recommended reading for those interested in this subject

BLEEDING FOLLOWING ONSET OF MENOPAUSE

To the Editor —A 57 year old white woman began to experience hot flashes and irregular menses twelve years ago In the last two years her periods have been infrequent perhaps three or four times a year but last month she menstruated for a full week the quantity being about normal Many times there is a mere show for a day or two Her hot flashes have persisted they are helped by use of diethylstilbestrol but they are not relieved by large doses of estrone Examination at regular periods has shown no evidence of fibroid or cancer What is the likelihood of this patient s becoming pregnant? Are there instances of pregnancy at her age?

M D Michigan

Answer —A woman who bleeds after the onset of menopause (hot flashes) should receive a diagnostic curettage to rule out cancer of the uterus It is unlikely that this patient would become pregnant, although pregnancies have been reported in women of this age. Estrogen given for treatment of menopausal symptoms may produce bleeding

ANTITOXIN GIVEN BEFORE RECEIPT OF LABORATORY REPORTS

To the Editor —A boy aged 11 years had a temperature of 99 4 F acute follicular tonsillitis with large discrete follicles ringworm on the right arm and a blotchy erythema on the neck groin knees ankles elbows and wrists The diagnosis was tonsillitis with toxic erythema and ringworm He was given a triple sulfonamide preparation 15 grains (0 97 Gm) every four hours while awake tyrothricin lozenges every two hours and 400 000 units of penicillin intramuscularly The next day his temperature was 101 F The exudate had spread and was confluent over both tonsils The lymph nodes in the anterior cervical triangles were swollen and tender The child had been immunized against diphtheria in 1939 at the age of 10 months and had a negative Schick test at the age of 16 months He received a booster diphtheria tetanus toxoid inoculation at 9 years of age and another booster inoculation two months before the present illness Smears were stained in my office using Albert s stain It was believed that diphtheria organisms were present and a clinical diagnosis of diphtheria was made Without waiting for the laboratory reports I gave the patient 20 000 units of antitoxin after ophthalmic and skin tests were negative Twenty four hours later his temperature was normal and the membrane was beginning to separate from the tonsils However it was still tenacious and confluent The lymph nodes were much less tender and swollen Convalescence was uneventful Two laboratories reported that cultures were negative The head of one of these laboratories holds that a diagnosis of diphtheria cannot be made without the confirmatory evidence of a culture exhibiting growth of Corynebacterium diphtheriae I cannot agree with this view Can a diagnosis of diphtheria be made despite negative cultures? Should antitoxin be withheld from a patient exhibiting a confluent adhesive membrane until positive cultures can be obtained?

C L Concklin M D Corpus Christi Texas

Answer —Occasionally cultures from a diphtheria patient may be reported as negative In such circumstances there may be an abundance of necrotic tissue (membrane) However, a repetition of cultures should disclose the organism The evidence presented in the query is strongly against a diagnosis of diphtheria Nevertheless, diphtheria antitoxin should never be withheld when a clinical diagnosis of diphtheria seems apparent In the past diphtheria accounted for many deaths because administration of antitoxin was delayed until a laboratory diagnosis was made

DETERMINATION OF SERUM PROTEINS

To the Editor —When the falling drop method is employed for the determination of serum proteins is it permissible to use serum discolored to a dark burgundy by laking of a small part of the clot? If not will any of the more common laboratory methods permit estimation of the amount of protein thus added?

R J Kent M D Savannah N Y

Answer —All methods for the determination of serum proteins will give false values if serum is contaminated with hemoglobin Such contamination should be carefully avoided It is not possible to make any precise correction, because the presence of hemoglobin in the serum is an indication that there has been incalculable damage to cells which may lead also to transfers of water and inorganic materials and consequent change in the relative volume of the serum If this is disregarded and it is still desired to determine the amount of serum protein without hemoglobin it would be necessary to estimate the hemoglobin separately by one of the colorimetric benzidine technics However, the error in such measurements might be great

ESTIMATING THE PROTHROMBIN LEVEL

To the Editor —Please furnish information on the preparation of Stypven ® (venom of Russell s viper) to use for prothrombin estimations I have tried crystallized crotalic and bothropic venom diluted to 1 100 000 but both clotted plasma before the addition of calcium chloride Will you discuss the properties of snake venoms and their use for prothrombin estimations

M D Brazil

Answer —According to Eagle (*J Exper Med* **65** 613 1937) the venoms of Bothrops atrox and Crotalus terrificus basiliscus are able to convert prothrombin to thrombin or in other words act as thromboplastin An impurity with thrombic activity in these venoms would account for the clotting of plasma before calcium chloride is added Neither of these venoms have been used for the determination of prothrombin Venom from Russell s viper was introduced as a thromboplastin for Quick s prothrombin test by Fullerton (*Lancet* **2** 195 1940) Recently a number of workers have found that the prothrombin as measured by the one stage method using venom from Russell s viper for thromboplastin may show a relatively high prothrombin level in patients receiving dicumarol[8] even in the presence of hemorrage and when the level as determined by Quick s original method using acetone dehydrated rabbit brain is below the *margin* of safety The venom from Russell s viper appears therefore to be unreliable for estimating the prothrombin level in patients receiving dicumarol [8]

TREATMENT OF SARCOIDOSIS

To the Editor —A person with Boeck's sarcoid has asked if there is any new treatment of this condition What is the present treatment?

M D, Arizona

Answer—The cause of Boeck-Baumann-Besnier sarcoidosis is still unknown, and no definitive or generally effective mode of therapy has been recorded Since almost any organ system may become involved with sarcoidosis, treatment, when such is elected, is directed against symptoms Some of the agents which have been employed include arsenic, bismuth and gold compounds, tuberculin, chaulmoogra oil, roentgen rays, radium and ultraviolet rays Recently favorable reports have been rendered concerning the use of calciferol and di-hydrotachysterol in cases in which the skin lesions have been the main manifestation However, toxic side effects may occur which are related apparently to elevation of the serum calcium and nonprotein nitrogen levels, these symptoms may be nausea, vomiting, weakness, malaise and dizziness

In a recent report from the Conference on Sarcoidosis, held under the auspices of the National Research Council, it is stated that in the natural evolution of the disease "the outcome may be clinical recovery without gross or radiologically visible residuals, or it may be impairment of function of organs involved, or a continuous chronic course of the disease " In several recorded series of cases in which treatment was not given, about one third of the patients had clinical disappearance of the disease, in one third the disease remained stationary or had alternate progression or regression and in one third it progressed to lethal outcome. Nitrogen mustard has been used in the treatment of 4 patients with sarcoidosis, with some suggestion of therapeutic value It would seem questionable, however, to employ such a potentially toxic drug in diseases other than malignant lymphatic tumors

FRAGILITAS OSSIUM

To the Editor —What is the latest treatment for fragilitas ossium? A small child, whose weight at birth was 3 pounds 3 ounces (1,446 Gm), progressed rather well until two months ago, when there occurred a fracture of the left femur, then a fracture of the metatarsal bone in the same leg and then a fracture of the tibia and fibula of the same leg Both the mother and child had negative Kahn reactions The urine was normal The child was given vitamin D_2 (drisdol®) with supplementary dicalcium phosphate

Louis H Bos, M D, Rehoboth, N Mex.

Answer.—Fragilitas ossium (osteogenesis imperfecta, brittle bones, osteopsathyrosis and sometimes called Lobstein's disease) is characterized by blue scleras, brittle bones and disturbances in hearing (otosclerosis) Many victims of this disease of doubtful hereditary nature suffer skull or rib fractures during the act of birth with fatal intracranial or thoracic hemorrhages Some infants may reach several years of age before frequent fractures occur The disease in this last group has been labeled osteogenesis imperfecta tarda The skull is almost always square shaped and broadened in the parietal axis The blue scleras according to some authors are never absent, others have reported instances in which blue scleras were not present

Life expectancy in osteogenesis imperfecta is below normal Most patients examined fail to show any definite lowering of blood calcium or phosphorus levels, and a few infants show clinically thickened and short stubby bones, whereas most patients with osteogenesis imperfecta tarda show attenuated brittle, easily bent bones with fractures The dyscrasia is looked on as a congenital lack of proper bone formation The cortex of long bones is thin, the medullary cavity wide and the bone density in the roentgenogram light Syphilis is not a cause

Treatment therefore becomes impotent against prenatal bone malformation The following methods have been tried If there is any lowering of calcium and phosphorus blood levels and an absence or low level of free hydrochloric acid in the gastric juice, dilute hydrochloric acid in appropriate doses could be given after meals A high protein diet is indicated to aid phosphorus intake Cod liver oil in moderate doses is likewise recommended Crystalline vitamin D is not recommended One may use tribasic calcium phosphate in appropriate dosage, watching for any evidence of kidney stone formation Parathyroid extract should not be administered

Orthopedic treatment is useful The fractures usually heal satisfactorily under proper conditions of immobilization Refracture is frequent Bone bowing and softening with deformities and laxity of joints are found The child must be guarded against rough play and trauma and might have to wear supporting braces on the back, legs and/or arms to avoid multiple fractures or skeletal deformities If the patient survives to full maturity, many of the symptoms may subside, the occurrence of fracture becomes less frequent and life may become more nearly normal Even the blue scleras may become less intense These facts have led men to believe that endocrine development had much to do with recovery

In case of deformities resulting from the fractures, manual osteotomy or multiple, corrective, surgical osteotomy may be employed All such elected insults to the bone must have prolonged splinting to insure union and to avoid pseudarthrosis If pseudarthrosis has developed, bone graft may be applied It is often impossible to obtain bone graft from the patient himself, and in many instances bone from the mother has been satisfactory

TEMPORARY STERILITY

To the Editor —A lieutenant in the Air Force who has been stationed on Guam for two years was told after laboratory investigation that he is sterile He states that a number serving in that area got similar reports Dr His, son of the Swiss physiologist, wrote a book entitled "A Doctor at the Front" He mentions the finding of azoospermia in infantry men after tours of front line duty The lieutenant mentioned he is anxious to know whether the sterility reported is temporary or permanent

W A W Switzer, M D, Ridgway, Pa

Answer—The lieutenant in the Air Force stationed in Guam may be suffering from temporary sterility A testicular biopsy will determine whether a state of temporary or permanent sterility exists Great physical or mental exhaustion have been known to result in temporary azoospermia The condition is frequently found in athletes and teachers

CALCIUM MEDICATION DURING PREGNANCY

To the Editor —Is there any evidence that early calcium therapy in the pregnant woman causes the infant's skull to resist molding or cause a more difficult labor? I have used calcium medication for years but feel that deliveries in women are becoming more tedious, with more violence to the mother

George W Patterson, M D, Willits, Calif

Answer—Good evidence is not available to support the belief that calcium given to pregnant women causes failure of molding or makes labor more difficult In fact, fully satisfying the maternal need for calcium probably produces beneficial effects with respect to labor pains Excess calcium given will be excreted unless some abnormal factors are present This consultant has used it for fifteen years with no evidence of untoward reactions

LAMINECTOMY AND SCIATICA

To the Editor —The answers by your consultant to the questions relative to sciatica (The Journal, Jan 7, 1950, page 70) should not be allowed to stand without comment as representing views unanimously held by all who deal with disk herniations The answer properly emphasized that sciatica is merely a symptom and implied that operation was indicated for certain disease entities found to be the cause of sciatica Exception should be taken, however, to the statement, "Laminectomy is indicated when a definitely protruding disk can be demonstrated" The indications for intraspinal surgical intervention in protrusions of lumbar disks involve more than the mere demonstration of a pathologic lesion, since this lesion, unlike tumors and certain infectious conditions, usually does not terminate in an incapacitating or inoperable state if operation is delayed This being so, one should consider the degree of disability present during the attack, the duration of attacks, the length of the interval between attacks, the total duration of the illness, the age of the patient, the response or lack of it to less radical forms of treatment and the attitude of the patient toward his pain, before advising surgical treatment

Once operation is decided on it will be necessary only occasionally to perform laminectomy The answer should have focused attention more on the crucial removal of fragments of cartilage than on one means of gaining access to the intraspinal structures Laminectomy is unnecessarily radical, and, following the lead of Love, most surgeons remove lower lumbar disk herniations by the interlaminal approach, sometimes aided by the removal of bone from the adjacent margins of the laminas bounding the space in question

The initial statement by the answering authority, "A positive diagnosis is usually possible by means of spinal fluid analysis for total proteins," also needs comment Though the total protein is elevated beyond the normal figure in one half to two thirds of patients with disk protrusions this hardly constitutes a basis for positive diagnosis since a third or half have normal levels and in those with elevated levels it is not the protein elevation which is diagnostic or distinguishes from several other causes of protein excess and sciatica In practice, the protein level is accepted as auxiliary evidence of herniation if it is between 40 and 120 mg per hundred cubic centimeters, but if it is much over the higher of these two figures another explanation of the sciatica (neoplasm) becomes likely The neurologic findings in patients with protruded lumbar disks vary with the disk protruding and the sacral or lumbar roots involved Attention should not be directed to ankle jerk abnormalities alone among the various reflex and muscular abnormalities possible

The question concerning the percentage of "cures" to be expected following the removal of protruded disks is ignored in the answer A number of reports have been made concerning the percentages of various types of results obtained The "cure" rate (complete relief) ranges from 41 5 per cent to 80 per cent Additional percentages of patients undergoing operation obtained degrees of relief varying from moderate to almost complete, and these, when added to the cures, raised the percentage of good results

George Ehni, M D, Houston, Texas

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BASIC ORIENTATION AND EDUCATION OF THE MEDICAL STUDENT

JOHN ROMANO M D
Rochester N Y

In the field of medical education there appears to be abundant evidence of growing dissatisfaction with existing programs and of attempts to study current practices critically in order to determine whether changes are necessary and, if so, what changes should take place There are available to the reader a considerable number of historical reviews, critiques of current programs and suggestions for the future In many one finds recurrent references to the need for medical students to obtain a broader concept of human biology so that they may apply intelligently and effectively the knowledge accumulated and the skills acquired during their training to the promotion of health, to the prevention of disease and to the study and care of the sick There is recorded, too, in these reports the need for a scheme of education which would lead to an understanding not only of the disease process but of the total aggregate of biologic experiences, including the psychologic and social aspects Further there is recognition of the need not only to understand this total experience as an isolated phenomenon but to relate it to the community in which the physician and the sick person live

This interest in medical education is not exclusively the concern of formal review boards, curriculum committees or medical educators The general public has become increasingly interested in the medical schools not only as they relate to the goal of improved health service to the nation but also as they make possible the ways and means to provide the public with better trained physicians

A central theme in these considerations is the recognition of the need for a broader, a more comprehensive, concept of human biology, a concept which will make possible scientific inquiry into many areas of human behavior previously either totally disregarded by medical science or, if considered done so more or less exclusively in terms of intuition or revelation Fundamental in this concept would be consideration of the multiple devices, genically and experientially determined which may be used by the biologic organism to fulfil its needs to adapt to and to master its environment from its initial stage of dependent helplessness through an ascending gradient to increasing voluntary control and subsequent discriminatory and economic behavior

It is generally accepted that this approach to a conceptual scheme of biology has become the concern of many disciplines In human biology a number of sciences (psychology, anthropology, sociology), previously sequestered from medicine, may join psychiatry in attempting to bridge the gap between the physical and biologic sciences on the one hand and the social sciences on the other

Unlike the social sciences, psychiatry has been and will probably continue to be patient centered So long as its central concern is the destiny of the patient regardless of its contributions to either the physical or the social sciences, psychiatry will continue to operate within the field of medical science The significance of psychoanalytic psychology in affording a more systematic foundation for psychiatry is less of a controversial point in American medicine today than it was two decades ago, when I began the study of medicine The significance of psychiatry, supported as it is today by psychoanalytic psychology, as one of the disciplines which may play a major role in attaining a more comprehensive concept of human biology has, in my opinion, received less attention

This paper will consider the role of psychiatry, particularly as it has been influenced by psychoanalytic psychology, in working toward this goal of a more comprehensive concept of human biology Obviously, knowledge of the setting in which this is taking place is of primary consideration Intelligent planning for the teaching of psychiatry in medical schools today must be based on a reasonable understanding of the preparation of students who are admitted to the study of medicine, of the conventional conceptual schemes in which medicine is now taught and of the special problems which arise in introducing conceptual schemes which are different from those currently accepted Consideration of these problems will comprise the major thesis of this paper

In this paper interest is not restricted to the point to point relationship between undergraduate psychiatric education and special or career training in the field It will be apparent that what is being considered is the influence of psychiatry in the broadest implications of human biology Nor is the paper the result of a formal statistical inquiry into method, content and goal of current curricular programs It is a report based on sixteen years of personal experience with students and faculties of six medical schools

PREPARATION FOR MEDICAL SCHOOL

Let us consider, first, the preparation and background of medical students With notable exceptions, there is a significant disparity in the preparation of students who are admitted to medical schools The collegiate

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Read at a meeting of the American Psychiatric Association Montreal Canada May 23 1949

Professor of Psychiatry University of Rochester School of Medicine and Dentistry and Psychiatrist in Chief Strong Memorial and Rochester Municipal Hospitals preprofessional training is apt to be much more thorough and inclusive in physics chemistry and biology than it is in psychology, sociology history and literature. There are a number of reasons for this state of affairs. One obvious reason is the remarkable increase of knowledge in the physical sciences and their equally remarkable application to medicine. No one can deny that the most significant contribution to medicine in this century has been the impact of physics and chemistry on biology and the introduction of methods of quantitative measurement in the biologic and medical sciences. The results of these applications are largely responsible for the increase of the life span today. Is it not a logical consequence then, that the preparatory period in medicine should be concerned with matters which are known and proved to be of utmost importance to medicine? A second reason is that the body of knowledge of the physical sciences not only is applicable to medicine but is systematized and capable of orderly presentation to students. For the most part it is noncontroversial, invested with few irrational emotions and, therefore, easily communicable. A third reason is that until recently there has been little demand from the medical schools for improved or more intensive teaching in psychology and in the social sciences. In the traditional medical scene no one has missed this knowledge very much, nor have medical educators been much impressed by those students who have come to the medical schools with special academic experience in these fields. Other reasons include the fact that the areas of psychologic and social inquiry are more complex, the knowledge obtained is less systematized and the effective application of this knowledge to medicine has yet to be proved. There is, too, a great scarcity of mature seasoned teachers who have acquired sufficient knowledge and experience and who are able to communicate what they do know clearly and in a stimulating manner. Actually there has been little time afforded teachers of psychology and the social sciences in the preparatory period, and thus they have had little or no opportunity to share their knowledge.

Whatever the reasons may be, the medical student of today is less informed (or is misinformed) in the psychologic and social aspects of human behavior than he is in the physical and chemical aspects. Further this disparate background followed as it is by the preclinical years of the medical curriculum, usually leads to a conceptual scheme of human biology in which psychologic and social factors are largely disregarded. However a change seems to be taking place. My colleagues and I have noticed it in the past three years, and our observations are similar to those made by teaching colleagues in other medical schools. First year medical students seem to be more aware than their predecessors have been of the significance of personal and social factors in human experience. There is an unprecedented eagerness perhaps an anxious eagerness, on the part of these students to learn more about the nature of man and of his relationship to the society in which he lives. A small number betray their anxiety by an almost childish demand for formulas and for fixed designs for living. It is difficult to know what all the reasons may be for this, and we have not had the opportunity as yet to study this phenomenon systematically. However, our experiences with medical students lead us to believe that the fact that most of them are older and are veterans plays a large part in this change.

Constructive efforts are being made to improve the teaching of psychology and the social sciences in the premedical period. Our impressions however, are that the student's readiness to begin the scientific study of human behavior appears to be based more on the nature of his previous life experiences than on the knowledge shared and communicated to him in his academic preparation. Whether age or more appropriately, range of experience and capacity for growth are the variables principally involved remains to be proved.

Many medical schools are making valiant attempts to utilize all methods possible to select students who will become good physicians. So far as I know no one has been able to define clearly the properties of a good physician. Probability tests, such as vocational aptitude scales to be valid would have to cover a wide range including the capacity to do investigative work to administer men and things, to deal with the anxieties and guilts of patients without mobilizing unduly one's own and many other factors.

If the student is to become a physician, that is to care for the sick, it may be important to know beforehand if possible what his potential capacity may be to grow toward emotional maturity. At the present time selection is based on his performance in physics, chemistry and biology. These are given major consideration in the deliberations of most of the admissions committees in medical schools. Many educators believe that good records in these studies not only insure adequate background for an important part of medical education but also constitute a fairly good index of general intelligence and general fitness for medicine. This has yet to be proved or disproved. Others believe that this criterion of selection may eliminate at the outset a number of students with poorer records in these disciplines but with greater potential capacity for emotional maturity and for special aptitudes in personal and social relationships. These issues are presented to you for your consideration as any program entailing change in the fundamental nature of medical education must be concerned with the preparation and with the readiness of students to participate in this change.

CONCEPTS OF MEDICAL SCIENCE

Next let us consider the conventional conceptual climate of medical science. I have spoken previously of its dualistic attitude toward mind and body and of its reluctance to inquire scientifically into certain areas of human behavior.

It is evident that because of the great advances in many of the medical sciences, particularly those which necessitate acquisition of special skills, little integration between them has taken place. In spite of sincere attempts to introduce patients to students early in the preclinical period and to foster correlation clinics and courses knowledge and skills have grown vertically, with little or no horizontal spread.

Furthermore parts rather than wholes of behavior have been the major concern of medical scientists. The what and the how of parts—or even of the whole—of behavior has always interested the medical scientist more than the why. One cannot help wondering why medical science has been so reluctant to concern itself with purpose and with holistic concepts. That this attitude has existed for some time even in biology is substantiated by E von Brucke's famous statement "Teleology is a lady without whom no biologist can live. Yet he is ashamed to be seen with her in public."

Disease is usually interpreted in a static rather than a dynamic sense. To many students the concept of disease is fulfilled by the enumeration of certain objective data obtained by the diagnostician either directly through sensory observation or indirectly through various mechanical extensions of his senses. There has been a tendency to disregard the subjective experiences of patients or to consider them untrustworthy and unscientific. William James' quotation is still apt:

> Many persons nowadays seem to think that any conclusion must be very scientific if the arguments in favor of it are all derived from twitching of frogs legs—especially if the frogs are decapitated—and that on the other hand any doctrine chiefly vouched for by the feelings of human beings—with heads on their shoulders—must be benighted and superstitious.[1]

Little attention is paid to health and it is often considered in the negative sense of absence of disease. It is challenging to current thought to point out that health and disease are not static entities but are phases of life dependent at any time on the balance maintained by devices genetically and experientially determined intent on fulfilling needs and on adapting to and mastering stresses as they may arise from within the organism or from without. Health in a positive sense, consists in the capacity of the organism to maintain a balance in which it may be reasonably free of undue pain, discomfort, disability or limitation of action including social capacity. Another characteristic of the current understanding of disease is for students to think in terms of unitary cause and effect rather than in terms of multiple interchanging forces. How much of this current thought is due to the very remarkable advances resulting from the germ theory of disease is not known. Critical concern on this point comes not only from psychoanalysis but from the general field of biology. Some years ago Jennings stated in discussing the fallacy of the single cause:

> This fallacy is the commonest error of science making unsound a considerable proportion of its conclusions. Everywhere there is a search for the cause of this or that phenomenon; the investigator is not content until he has found it. Yet natural phenomena—and most emphatically is this true of biological phenomena—merely arise out of the complex situation in which they occur. Many elements of that situation affect them and all that experimental science can do is determine what difference is made by altering one or more of these elements; none is the cause to the exclusion of the others.

It is my impression that students are keenly aware of the marked differences in the form and content of teaching between the first two years and the second two years of the medical curriculum. The change from inanimate to animate and, to a degree from mammalian or infrahuman to human necessitates an entirely new orientation for the student. The student-cadaver relationship is different from the student-patient relationship. Toward the end of the second year the student suddenly finds himself participating in an animate and reciprocal human relationship unlike any with which he has been previously acquainted unlike—in degree certainly and perhaps in quality—because of the unique properties which this relationship possesses. Not only is it based on mutually realistic appraisals by the patient of the student and by the student of the patient but also it possesses other qualities of which neither may be aware consciously and which relate to an accumulation of the past emotional experiences of each. The fact that this interpersonal relationship may in itself be a proper area for scientific inquiry is essentially a new and challenging thought in medicine. Historically the doctor-patient relationship from the time of Hippocrates to the present day has been considered in terms of artistic expression, has been invested with spiritual value and is thought to be acquired only through intuitive means with long experience. The fact that this interpersonal relationship may actually increase the number of variables to be considered in the concept of disease has as yet received little scientific attention either in the field of clinical investigation or in medical therapy.

The student-patient relationships in most teaching hospitals and their outpatient departments do not give the students an adequate opportunity for long term study and continuity of work with patients. This is particularly so with patients who do not respond immediately to treatment and those in whom there is no remarkable change in the experience of pain or disability over a long period. Even the outpatient facility, probably because of its interdepartmental reference system does not permit the student to obtain long term experience with the patient. Problems of prolonged convalescence chronic disease and disability are seen in brief and at times discontinuous or random sessions. The continued responsibility for the care of a chronically sick person adds immeasurably to the education of a physician. It requires maturity to be able to recognize limitations to avoid becoming angry because the patient does not get well to avoid becoming discouraged or discouraging and to continue to wish to help within the limits of one's ability.

In certain university teaching hospitals the student is not exposed to a sampling of the common illnesses of man. There is a tendency to admit for study only diagnostic dilemmas and at times this turns into what might be called clinical stamp collecting. One saw the reaction to this in military service when many of the young physicians appeared to be bored and impatient with men who suffered with the most common complaints of mankind—headache backache and bellyache—and felt that they were acting as dignified physicians only when they were presented with evidence of the rarer and more obscure types of disease. With notable exceptions, students have little opportunity to obtain knowledge of the social implications of sickness. They are interested in but frequently do not have an opportunity to learn more about the lives of their patients before and after their stay in the hospital the restrictions enforced by illness and in a broader sense the costs of illness of hospital care and of community, state and federal public health programs.

Finally, one would not be doing justice to the conventional scene of medicine if one did not consider the relative prestige position of disciplines in the medical school. Until recently psychiatry has had little prestige value. It has been afforded little time in the crowded curriculum. In the past it has been concerned with one small segment of its operational field namely, the care of the chronically ill which for the most part has been distant and foreign to the central theme of medicine.

DIFFICULTIES IN THE TEACHING OF PSYCHIATRY

Let us consider how certain difficulties which are encountered not by reason of conventional concepts of medicine but by the nature of the material in psychiatry which is communicated to students. The central consideration of psychiatry is the study of human behavior, including those aspects of human behavior which may be highly invested with emotion, both rational and irrational. Naturally this necessitates a reasonable capacity on the part of the student to be able to deal with these aspects of behavior without their mobilizing unduly his anxiety if he is to operate intelligently and effectively as a physician.

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[1] Allport G W Productive Paradoxes of William James Psychol Rev 50:95 120 1943

[2] Jennings H S The Biological Basis of Human Nature New York W W Norton & Company Inc 1930

Experience in teaching psychiatry has taught the need for some type of *preliminary* working-through phase for the students. It is obvious, even to students, that there are considerable differences between communicating knowledge of physics, physiology or, for that matter, infectious disease and dealing with the emotionally invested aspects of human behavior. With regard to the latter, students are apt to bring with them a considerable amount of information and misinformation based on their own lives which when challenged with alternative or conflicting facts or interpretations of facts may provoke anxiety, guilt and resentment. The body of psychiatric knowledge is less systematized, lends itself with difficulty to orderly presentation, is highly complex, and unlike the other medical sciences, provides little opportunity to isolate variables, so that one or more may be analyzed discretely. Whether the group is small or large opportunity is afforded for the students to ask questions, to comment, criticize and discuss. Obviously, this necessitates experience and maturity on the part of the teacher adequate to keep his relationship within the realistic ethic of the teacher-student and not, except for special circumstances, make of it a therapist-patient relationship.

I am also convinced of the need for teaching programs to be extended over a long period. Short, intense, concentrated teaching may be of some value in communicating certain technics and skills in a familiar frame of reference but in my opinion restrict and limit the working through or assimilation experience vitally necessary in the learning process of students.

Many students become impatient with the incompleteness of the knowledge in the field of psychiatry. Although they are aware of the lack of metaphysical certitude of all scientific knowledge, they appear to be more distressed with the inadequacies in this field than with those of other medical sciences. For example, they are apt to accept, with little critical challenge, the alleged relationships between hormonal physiology and the menopausal syndrome and attack much more vigorously the concept of regression, which I believe has much more scientific evidence in its support. They are ready to accept the fact, which can be supported by evidence, that people are different. They are also able to consider determinants for these differences in terms of genic and/or experiential factors and thus concede that man's behavior is modifiable through experience. However, they challenge the use of analogic concepts such as that of energy in the psychoanalytic theory of personality. They bristle when one uses quantitative expressions in describing behavior currently not mensurable except in terms of more or less. They are critical of the present classification of sick persons, as it rarely applies to the patients they study on the medical and surgical floors. Although they are impressed with the fact that pediatricians and educators have borrowed generously from psychoanalytic experience in stressing the special vulnerabilities of early human life and the special meanings of suckling, feeding, weaning, toilet learning, play and discipline in infancy and early childhood, they ask to examine the tested knowledge which would support the significance of these phenomena in influencing adult character in health or disease. They ask pertinent, penetrating and embarrassing questions concerning the knowledge, or lack of knowledge, of the normal ranges of reactions of persons to acute and to chronic illness and of everyday social custom in play, work and worship. They inquire into the predictive value of theoretic assumptions and ask why more experiments are not designed to test these hypotheses systematically. They are puzzled when confronted with the close similarity of genetic and dynamic factors in patients who exhibit widely different somatic, psychologic and social symptom formations. In brief, they look forward with realistic and/or neurotic motives to a more orderly, a more systematic and a more thoroughly tested body of knowledge.

SUMMARY

It is evident that psychiatry, largely through psychoanalytic psychology, will play a major role in the scientific humanization of biology. If it can help the medical students to gain a rational understanding of the unique characteristics of the physician-patient relationship, if it can stimulate the student to a better understanding of the psychology of acute illness, convalescence, chronic disability and deformity, if it can teach him the role of personal and social forces as determinants of behavior including somatic, psychologic and social symptom formation, if it can guide him in knowing what he can and cannot do, what he should and should not do in the field of psychotherapy and, perhaps most important, if it makes possible his use of scientific method in all areas of human behavior, it will indeed have been successful.

To those who accuse medicine of having become too scientific, I would counter with the charge that medicine has not become scientific enough. Medicine has used methods of scientific inquiry in those areas of experience which lend themselves to understanding through physics and chemistry. It has only begun to use methods of scientific inquiry into areas of human experience previously dealt with and approached by intuitive and inspirational means. This is the major responsibility of psychiatry in medicine, as, in my opinion, the functions of medicine are to acquire knowledge and to apply it to promote health, to prevent disease, to free man and to help man free himself from the enslavement of pain and disease and from the equally great enslavement of morbid fear and guilt in order that he can function to his maximum capacity as a conscious, intelligent and rational human being.

Viral Variation.—Centuries before the sciences of bacteriology and of virology were developed, the reality of viral variation was appreciated in the Orient in connection with variolation as a prophylactic for smallpox. In the intervening years, almost up to the present time, Jenner's introduction of vaccination and Pasteur's production of a variant of rabies virus represent the only important contributions to variation in viruses. With the establishment of the basic principles of virology in the last fifty years, studies of viral variation have revealed data of fundamental biologic significance. In this connection may be mentioned the production of the attenuated 17 D variant of yellow fever virus (146), the transformation of the fibroma virus into the virus of infectious myxomatosis (8), and the recombination of bacterial viruses (88, 107). The use of the attenuated variant of yellow fever virus for the immunization of man has proved to be the most important practical result of all investigations of virus diseases infecting man.—B. A. Briody, Variation in Influenza Viruses, *Bacteriological Reviews,* March 1950.

RESETTLEMENT OF THE DISPLACED PHYSICIAN IN THE UNITED STATES

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Providence R. I

When the International Refugee Organization of the United Nations took over the care of the refugee population of Europe in July 1947 there were over a million and a half persons who were under its general protection, while slightly over 700,000 of these were entirely dependent By July 1948 there were 599,000 receiving care and maintenance On March 31, 1949, the number was 483,715 The latest figures are not available Many of these persons are fugitives from countries now under the domination of Russia, and their known opposition to Communism makes a return to their own homes impossible A number of national groups are represented, including those of Poland, the Baltic States, the Ukraine, Czechoslovakia, Yugoslavia, Rumania and Hungary The resettlement of these displaced persons is one of the prime responsibilities of the International Refugee Organization It is aided by various voluntary agencies most of which represent religious groups Voluntary agencies from the United States include Roman Catholic, Protestant and Jewish organizations

In this group of displaced persons there were, in September 1948, 2,560 physicians registered with the I R O and certified by that body for the medical care of their compatriots These have been acting as camp physicians, have staffed the hospitals taken over by I R O and have carried out public health and preventive medicine Although living conditions have been poor indeed and the food allowance low in calories and critically low in protein, the health records of the displaced persons generally, including infant mortality and contagious disease control, will bear comparison with those of any country Resettlement of physicians has been slow, and it is believed that almost 2,300 remain in Europe at the present time Most of the doctors of Jewish faith have been resettled, largely in the state of Israel Almost all those who remain in Europe are of the Roman Catholic, Eastern Orthodox and Protestant faith The latest figure obtained gave the number of Catholics as about 35 per cent of the whole and the number of Jews as about 10 per cent These are not official figures Under the present law governing the immigration of displaced persons from Europe, doctors continued to land in this country, and although no figures are available I believe that the number per month is increasing because of the efforts of all agencies concerned This is due to the fact that the International Refugee Organization is not authorized to continue in existence beyond 1950

What, then, shall be our attitude toward these European colleagues who are being brought to our shores? This is a particularly important question for this body As a former member of a State Licensing Board I am fully aware of the problems and responsibilities involved We are faced with a situation which may be summarized as follows

1 There exists in many parts of this country a definite need for more physicians

2 There is at present a large group of physicians rendered homeless in Europe who desire resettlement especially in the United States, and some of whom already are here

3 Protection of the health of the population of this country requires that none but well trained physicians be admitted to practice

The problem, then, is to select from this group those whose qualifications are such that they safely can be admitted to private practice, or to public health, laboratory or institutional work in this country The situation is new, and the regulations which have been set up in most states with a view to excluding doctors who had obtained cheap diplomas in Europe or were cast-offs or misfits in their own countries are not applicable We are dealing with populations of highly civilized countries and with medical groups which include all types, teachers, investigators, practitioners and specialists of every sort It is as if the entire population of such a city as Chicago, Boston or San Francisco were suddenly rendered homeless and being resettled in a new land Everyone, good, bad and indifferent, is included

How shall we assess the qualifications of these displaced physicians in general and of the individual physician in particular? Our first move may well be to examine what evidence exists in the records of surveys that have been made by the I R O The statistics published in September 1948 are summarized in the accompanying tables

TABLE 1—*Refugee Physicians Teaching Experience*

Professors	40
Associate professors	15
Docents (lecturers)	26

TABLE 2—*Refugee Physicians Age Grouping*

20-25	29
26-35	692
36-45	840
46-55	696
56-65	253
Over 65	50
	2 561

Attending the refresher courses given to displaced physicians at Munich in 1948 were 152 doctors, of whom 7 were full professors, 7 associate or assistant professors, 9 docents and 46 had been at the head of hospital services in their respective specialties This was, of course, a picked group, and the excellent impression made on my colleagues and me, who conducted these courses, cannot be considered a fair estimate of the whole body of displaced physicians It can, however, be admitted as evidence that among these physicians there are certainly a number who are of the highest type

The figures in table 2 indicate that among this group of physicians there are many of maturity and experience By the same token there are many for whom, despite their excellence in their chosen specialties or fields of teaching or research it would be difficult if not impossible successfully to take the general board examinations required of recent graduates

Table 3 shows the number of individual physicians who have been checked by the I R O and accepted for general practice or certified as specialists in the various fields of medicine

This brings up the subject of screening and certification of those persons among the refugee population

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Read before the Forty Sixth Annual Congress on Medical Education and Licensure Chicago Feb 7 1950 who registered with the I R O as physicians "Screening boards" were set up under the supervision of I R O medical officers and "were composed of refugee doctors whose ability and integrity were established, and whose reputations are, in many cases international The President of the Board in the British Zone of Germany was Dr Primanis, former Professor of Anatomy at Riga University and former Rockefeller Fellow in the United States In the American Zone Dr Jeno Kramar formerly Professor of Pediatrics and Director of the University at Szeged Hungary also a former Rockefeller Fellow, presided over the Board" Professor Kramar is well known to me as he attended the first of the refresher courses and took part in the teaching of pediatrics when the instructor in that subject, because of a tragic death in his family, was forced to be absent for two weeks I consider him one of the best teachers and most distinguished gentlemen whom I have ever met He is now in this country or is about to arrive and will be available to give personal testimony as to qualifications of displaced physicians generally should such further evidence be needed

TABLE 3—*Refugee Physicians, June 1948*

General practitioners	1,016
Internal medicine	157
Pediatrics	88
Tuberculosis	6
Neuropsychiatry	52
Dermatology and venereal disease	52
Radiology	20
Stomatology	68
Tropical medicine and hygiene	11
Anatomy and histology	10
Physiology and biochemistry	4
Pharmacology	4
Bacteriology and protozoology	42
Pathology	15
Forensic medicine	5
General surgery	[illegible]
Orthopedics	8
Gynecology and obstetrics	120
Ear, nose and throat	51
Ophthalmology	50
Urology	12
Total	[illegible]

These screening boards were made up of five members and from five to eight consultants in various branches of medicine who were of eight different nationalities and spoke ten languages Their method has been as follows

> A detailed preliminary study of rules and University curricula pertaining to medical qualifications and registration in all countries concerned was made The large majority of candidates presented authentic original diplomas and supporting documents Where there was any doubt regarding the authenticity of statements or documents, the applicant was asked to submit to an oral examination before the whole Board Among the nationalities concerned were Estonians, Lithuanians, Latvians, Hungarians, Polish, Ukrainian-Polish, Croats, Chinese, Bulgarians, Slovenes, Turkish and Stateless persons
>
> All claims were thoroughly investigated by the Boards and only physicians presenting strong guarantee of their qualifications were registered as doctors Moreover, the standard of qualification required was set on a uniformly high level comparable to those in the countries where they are likely to emigrate

The following quotation is also from the September report of the I R O

> This pool of skilled expert physicians is without parallel in history They possess the qualifications and qualities demanded by any country to improve the health of its citizens On an average each doctor knows at least three languages, and a great number have taught in universities and hospitals of their own countries some have studied in foreign countries many are still pursuing their research under very difficult conditions

This gives us a glance at the more favorable side of the picture Opinions based on other evidence have been expressed In a recent survey (November 1949) Captain Harry C Oard of the Medical Corps of the United States Navy, stated that at present he calculates that not more than 10 per cent of the displaced physicians now in Germany are employable in the United States or its dependent areas This judgment is based on a careful study in which such defects as age, dependent relatives, general appearance and character are given weight and a lack of familiarity with the English language is particularly emphasized He qualifies this further by the statement "With retraining and a period of supervised activity in modern clinical medicine many others could become acceptable by United States standards" He further shows that among the 240 persons whom he studied only 8 4 per cent were found to be professionally incompetent

When it is realized that the average refugee physician has learned to speak three or four languages it is evident that the language barrier is one that can be overcome in practically every instance Yet this was the most important "defect" noted by Captain Oard (in 117 of 240 physicians interviewed) It must further be noted that Dr Oard was looking for young and healthy persons for a particular type of service and was not interested primarily in the elderly and experienced physicians many of whom have already been found to be able to occupy responsible positions in institutions and in certain teaching positions

Furthermore the presence of dependent families is again not to be rated as a "defect" While it is necessary to provide for such dependents, if adults they are often employable in various ways and if children they are future citizens and as such an asset to the community A number of refugee physicians with dependent relatives are already in this country and are carrying on in positions which enable them to give their families support

It is my opinion that Captain Oard is probably correct in his conclusion that not over 10 per cent of displaced or refugee physicians are immediately employable Certainly not more than that number no matter what their professional training, should engage at once in practice in American communities without becoming professionally and socially adjusted The lack of familiarity with customs and usages has led many a foreign physician to make errors in dealing with his patients and his colleagues that have earned him the ill will of his brother practitioners and have given a bad name to refugee physicians generally I believe that no one will question the value of a training period for any physician who has not already studied or at least resided in this country for a period of several months

How can such training be given? The state of Iowa is leading the way The following action was taken at a meeting of the Board of Medical Examiners

> That the State Board of Medical Examiners approve the appointment of physicians who are graduates of foreign medical schools including displaced physicians as assistant physicians in the four State mental hospitals—Clarinda, Cherokee Independence Mount Pleasant and the Woodward Hospital and School and the Glenwood State School on the condition that their medical work be supervised by a licensed physician and that they be provided with definite courses of instruction by members of the hospital staff and such other recognized medical teachers as may be available It was further requested that attendance at such courses of instruction be properly graded, and a report of the same be submitted to the State Board of Medical Examiners each quarter At the end of one year of service the further course of each assistant physician will be individually considered by the State Board of Medical Examiners

This is certainly a forward step If the majority of our states could adopt this plan, the screening and reorientation could be carried on in such a manner that qualified physicians could be reconditioned as it were for resettlement in our communities and at the same time the work of our state institutions where there is so often a lack of medical personnel could be aided In *Rhode Island* also a similar plan is in force under a ruling of the Civil Service Commission which allows unlicensed physicians to be employed under the supervision of licensed physicians so long as there are no licensed physicians available to do the work It was my privilege to select three outstanding persons who have come with their families to Rhode Island and are rendering excellent service to the state It is understood further that in both Ohio and Colorado it has become a bit easier for qualified foreign physicians to be admitted

Table 4—*Regulations for Acceptance of Displaced Physicians in 48 States and 5 Territories*

Not accepted	22
Citizenship required	20
First papers required	8
Internship required	20
Further training required	7
Examination required	[illegible]

When we consider what the displaced physician faces when he comes to this country it is felt that though we are, I believe, as by tradition we should be, the most liberal of all nations to the immigrant nevertheless the hurdles which he faces are almost insurmountable In certain states where the regulations seem reasonable the displaced physician is met by such a barrage of petty technicalities and double talk that it almost looks as if a decision had been made to exclude everyone of foreign origin Table 4 summarizes the situation

In certain states interpretation *of their regulations* is carried to an extreme For example one state requires that the physician produce written evidence of graduation *from a* medical school signed by the dean of the school In one instance which was brought to my attention the physician was told that he must get such evidence although his medical school in Lithuania was in the hands of the Russians from whom no help could be expected and despite the fact that the physician who was his dean at the time he was a student is now in Chicago and willing to vouch for him

The recent report of the Committee on Displaced Physicians of the American Medical Association published in The Journal of December 24, is of interest The following recommendations were adopted

1 That the American Medical Association suggest to the state medical examining boards and to the Federation of State Medical Boards of the United States that they give special study to the present unique situation with respect to displaced physicians with the idea of framing special regulations to meet it

2 That the plan of accepting I R O certification in lieu of other evidence of graduation and professional status when such evidence cannot be obtained be suggested to the state medical examining boards

3 That efforts be made by the state medical boards to arrange for the appointment of displaced physicians in state hospitals as has been done in Iowa and in such other hospitals as may be possible to allow such physicians to become acquainted with American medical methods and practices

4 That state medical boards be urged to consider the framing of special regulations designed to make it possible for specially qualified displaced physicians to be licensed for limited practice in communities and hospitals where their services are needed

5 That the American Medical Association recommend to the appropriate departments of the federal government that steps be taken to allow the utilization of the services of displaced physicians certified by the International Refugee Organization in federal services such as the Indian and Alaskan services under the Department of the Interior where it is understood there is a great need for more physicians

6 That a copy of this resolution be sent to the secretary of each state medical examining board and to the Secretary of the Federation of State Medical Boards of the United States

It may be well to discuss paragraph 2 of this report a little further It is the recommendation that I R O certification be accepted by state boards The following description of the exact requirements that have been made by the screening boards is quoted from a letter just received from Dr Coigny Director of Health of the I R O

> 1 The personal presence of the professional men seeking registration In effect, practically all physicians and surgeons appeared before the boards as registration was an essential measure in being known as qualified for possible resettlement as a professional man
>
> 2 Proof of identity
>
> 3 Production of diplomas documents or other relevant material available
>
> 4 Absolute proof of qualifications In most cases original documents or photostats existed In others reference to the medical registers for qualifications in various countries was possible In other cases again there was available the evidence of former teachers or fellow graduates of known integrity whose evidence was taken on affidavit
>
> 5 For specialist claims there were clinical examinations as well as verification of the experience of which claims were made In this connection it is wise to remember that the

specialist is much more widely used on the Continent of Europe than in the United Kingdom or the United States of America

It is to be noted that the ratio of physicians to population among the displaced persons of Europe is high and there has been no pressure whatever to admit to practice any who were not considered fully qualified

The certificate of professional status issued by the I R O on the basis of these examinations is as follows

INTERNATIONAL REFUGEE ORGANIZATION

CERTIFICATE OF PROFESSIONAL STATUS
THIS IS TO CERTIFY THAT

Nationality Age Has Been Found
to be a Qualified
After Examination of Professional Qualifications by the Special
Qualifications Board in
and Graduated on in Accordance with the
Regulations of
I R O Medical Register No
Additional Qualifications

Signed Signed
President of Special Chief Medical Officer
Qualifications Board IRO
At on

The foregoing representations, based on investigations by competent persons are correct to the best knowledge and belief of the undersigned

Signed
Director General

SUMMARY

1 The presence of a large number of physicians who are displaced persons in Europe, many of whom desire to emigrate to the United States, and will succeed in doing so, and the presence of a smaller number of such physicians who have already arrived present a problem to the medical profession and particularly to the medical licensing bodies of each state

2 Among the group of displaced physicians are many of high professional caliber and a number whose age and degree of specialization make it difficult for them to take routine general examinations successfully, unless especially rehabilitated and prepared

3 Some of these physicians are without proper certificates of graduation from medical school, but all have been carefully screened by I R O committees, and certificates have been furnished to them Most of them also have records of satisfactory work performed as physicians under the I R O

4 The problem which faces our state medical boards in protecting and enhancing the health of our people and which involves in fact the primary function for which our boards have been established is (1) to admit to practice those who can be shown to be qualified and (2) to exclude those who they can show do not possess adequate professional qualifications In order to carry out the second function, that of excluding the unfit while fulfilling the equally important first function, special study of the situation which now presents itself and appropriate modification of regulations without lowering of standards are needed

SUGGESTIONS

The problem has been presented but not answered It would be presumptuous for me to propound categoric recommendations to the members of this Federation The following suggestions are put forward in the hope that they may, perhaps, serve as a basis for discussion which may produce enough light on this difficult subject to help toward a solution

1 It is suggested that certification by the International Refugee Organization be accepted as evidence of graduation in medicine

2 It is further suggested that the restrictions on licensure of European physicians who have graduated in the last ten years be lifted in the case of those who have received I R O certification

3 The plan of allowing foreign physicians to work in state institutions and other hospitals, which has been initiated in Iowa, with an attempt to provide definite training for such physicians, is strongly recommended

4 It is suggested that those states in which foreign graduates are "not accepted" revise this restriction to allow their citizens to benefit from the medical talent now made available by the arrival of the displaced physicians from Europe

5 It is suggested that state medical boards consider possible training facilities that may be available for foreign physicians in their own states and also the policy of giving approval to any courses of training that may in the future be organized by medical schools, hospitals or other agencies for the specific purpose of orienting and training foreign physicians for medical practice in the United States

6 A further suggestion is advanced, based on information that has just been received since this paper was written This information, which will be stated more in detail in the discussion by Dr Graef, from whom I have received it, is, briefly, as follows

We are informed that the principal American agencies dealing with displaced persons, including the American section of the I R O, have developed a plan to request the International Refugee Organization to pay the cost of processing, screening and finding resettlement opportunities in the United States for displaced European physicians and eligible members of other professions To insure the success of this plan, including a wise distribution of the displaced physicians, it is believed that the transition from displaced persons camps to American hospitals or practice should be under the supervision of American medical authorities Because of their responsibilities to the American public the state medical boards and the Council on Medical Education and Hospitals should take the leadership in this matter It is therefore suggested that the Federation of State Medical Boards of the United States consider recommending to the Board of Trustees of the American Medical Associtaion that a temporary national committee or commission be set up with suitable regional subcommittees to undertake the selection of such displaced physicians as should be resettled in America

Rhode Island Hospital

ABSTRACT OF DISCUSSION

Dr Irving Graef, New York The problem of displaced physicians is not unlimited, although it is complex We can assume that it will not go on indefinitely It involves about 2,400 physicians, or about 1 per cent of our present physician population The present group is composed of persons who are largely of rural or small town origin and can be expected to adapt to similar communities when ready to practice in America Their origin is in contrast to that of the predominantly urban group of prewar European emigres Their resettlement can be controlled through the migration facilities of the I R O, the President s Displaced Persons Commission, the sectarian or public welfare agencies and various state displaced persons com missions, to permit relocation based on opportunity local needs and retraining as defined by each state that seeks to pick the good men among them This requires an acceptable method of selection which we believe is now possible if Dr Burgess' last suggestion is followed I should like to review briefly data regarding the prewar refugee physicians who have been resettled for the past nine to twelve years These data were obtained by an independent study committee led by Prof Maurice Davie of Yale University In his report (Refugees in America Report of the Committee for the Study of Recent Immigration from Europe, New York Harper & Bros, 1947) the chapter on physicians was based on the work of our committee, which was founded as a nonsectarian organization in 1939 Our committee has been affiliated with the United Service for New Americans which in turn has been supported by funds from the United Jewish Appeal We have acted as an advisory group and have always required proficiency in English and a favorable professional evaluation from our Advisory Medical Committee composed of consultants in each of the specialties, as well as approval of credentials by the New York State Board of Examiners to exclude unfit persons from committee assistance Since 1941 we have also required at least one year s American internship for continued financial assistance In the case of dentists with M D degrees we have refused sponsorship for the practice of medicine In the case of men who have failed state licensing examinations more than three times we have also withheld sponsorship Except in unusual cases the committee has refused to give financial assistance for settlement in medically crowded communities We have registered interviewed and otherwise assisted about 6,000 immigrant physicians since 1939 During the war through direct cooperation with the Office of Procurement and Assignment of the War Man power Commission, about 500 physicians were placed in various jobs—internships residencies locum tenens industrial positions or practice in many states Since the war our committee has continued as the only available medically oriented agency in its work and registers those immigrant physicians who are referred to it or seek its help in New York City Hundreds of the postwar displaced physicians were incarcerated in concen tration camps and they especially need help In many cases their papers were confiscated, and this imposes a great handicap in meeting the legal requirement of the state licensing boards Dr Burgess suggestion of accepting I R O certification would be helpful, but we recommend a careful review of the evidence leading to certification by our own constituted medical authorities Can America absorb the remainder of the displaced physicians who want to come here? The Davie survey, previously mentioned was a questionnaire follow up in which 1 600 replies suitable for analysis were obtained from 4,000 inquiries The answers came from persons located in 455 communities in 41 states the District of Columbia and the Virgin Islands Fifty five per cent were in New York State (40 per cent in New York City), 25 per cent in Illinois Ohio California and Massachusetts and 20 per cent in other states and areas Except for a greater concentration of Jewish immigrant physicians in New York City and of Gentile immigrants in other cities of one million or more population there was *no appreciable difference* in the distribution of refugee physicians according to the size of the community There are many men of distinction among them 67 were listed in 'American Men of Science' in 1944 and many have made important contributions to American medicine Only 5 per cent reported a language handicap as a problem in their early adjustment. The majority acknowledged difficulty preparing and taking state board examinations, but 88 per cent obtained a license by examination, many on the first attempt. Of the group studied, only 7 5 per cent obtained their license by endorsement Of the loans which the sponsoring agencies made to men whom we recommended, better than 98 per cent have been repaid These data indicate the ease with which our country can absorb many displaced physicians The 6,000 already absorbed amount to only 3 per cent of our physician population Even if all the remaining displaced physicians were to enter the United States, and we do not propose this, they would constitute only an additional 1 per cent, without allowing for the diminution in number by mortality of the older immigrants in the past seventeen years There is said to be a likelihood that the modified Displaced Persons Bill now being amended in Congress will become law this spring It is part of the plan of the President s Displaced Persons Commission and the American section of the I R O to request the latter organization to pay the administrative expenses for the work involved in processing screening and finding resettlement opportunities for displaced European professional persons, including physicians We concur with Dr Burgess in the belief that the transition of physicians from D P camps to American hospitals or practice should be under the supervision of regularly constituted American medical authorities If a new temporary national committee or commission were set up in key states or cities, some order could be brought out of the chaos of the present situation Such an agency could provide refresher training, if desirable, overseas and in the United States as well as hospital retraining in United States approved hospitals, prior to admission to state board examinations We have reason to believe that such a new joint committee or agency would be assisted by the I R O in its functions at no cost Through the I R O, travel could be arranged for a special screening committee or teams, which could select candidates overseas to avoid the premature arrival of physicians for positions for which they are not suitable Such a plan will rapidly resolve the displaced physicians problem, prevent undue concentration in any area and permit a wide distribution based on need and community acceptance Reasonable tests of competence before, during and after the process of temporary resettlement and retraining are in order to determine eligibility for permanent license We will all profit from a wise and just course of action in the spirit of American traditional hospitality, within the meaning of the immigration laws and with safety as far as professional and public welfare is concerned

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Fat Absorption—All will remember the widely accepted lipolytic theory which postulates that fat is split completely by the action of pancreatic enzyme, steapsin to fatty acid and glycerol as a preliminary to *absorption The fatty acids are* absorbed as such through the assistance of the bile acids with which they form water soluble complexes Some fatty acids undoubtedly may be absorbed as water-soluble soaps When they arrive within the epithelial cell they are promptly resynthesized to the neutral fat, in which form they are transported to the liver and tissues According to this long accepted theory, fat *absorption results only* when such hydrolysis has occurred

The partition theory of Fraser puts forward an entirely new concept of fat absorption from the gastrointestinal tract. The splitting which is brought about by lipase is only minor This results in the formation of some mono and di-glycerides, some glycerol, and a limited quantity of free fatty acid The mono and di-glycerides in the presence of bile salts give an extremely effective emulsification medium so that the bulk of the neutral fats is emulsified to such extremely small fat droplets that they can readily be absorbed through the walls of the intestine as unhydrolyzed fat. In order to pass through this membrane they must be reduced to a diameter of less than 0.5 micron Fraser has amassed considerable evidence in support of this theory—Harry J Deuel Jr Lipid Metabolism *California Medicine* April 1950

PRESENT STATUS OF GOLD THERAPY FOR RHEUMATOID ARTHRITIS

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New York

With progress in medicine it is appropriate that critical appraisal of current means of treatment be made Such is the position of members of the medical profession today in the field of rheumatic diseases, especially in the light of recent knowledge of effects of steroid hormones in patients with arthritis Appraisal of gold therapy is particularly appropriate because this year finishes two decades of trial of this form of treatment in Europe and one decade of study of this treatment in the United States To determine what this experience has taught these questions should be considered

1 Is gold therapy of sufficient value that it be included in treatment programs

2 What are the limitations of this form of treatment

3 What toxicity is encountered?

4 If gold compounds are used, what is the best method of administration

5 Can improvements be expected in the future

To answer these questions effort has been made to evaluate as fairly as possible information in published reports and results some of which have not yet been published, that were observed in the laboratories and clinics with which I am associated

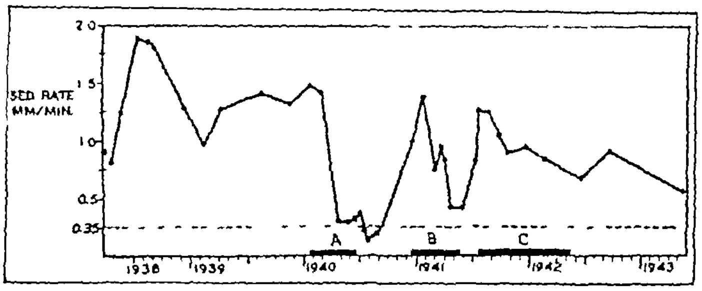
IS GOLD THERAPY OF SUFFICIENT VALUE TO JUSTIFY ITS USE?

Answer to the question whether gold therapy is of sufficient value to justify its inclusion in treatment programs will depend to a certain extent on conditions surrounding the observations and on criteria employed These facts should be kept in mind Until a few months ago criteria had not been adopted to provide uniform conditions for evaluating rheumatoid activity or effects of therapy [1] rheumatoid arthritis is a disease of protean nature, the course of which varies greatly in different patients but usually is characterized by remissions and relapses, gold preparations of widely different nature have been employed with different schedules of dosage, and patients have been treated in different stages of the disease These and other variables make it difficult to compare the reports of many different investigators, which are the best basic data available

Some brilliant results have been obtained, characterized by complete clinical arrest of the disease and return to normal of the erythrocyte sedimentation rate An example of this from my experience is shown in the figure (*A*) In many persons the disease has been much improved but not arrested Some patients have not been helped by gold therapy Reports of many observers are summarized in table 1 The few studies in which simultaneous control patients were observed have without exception shown benefit from use of gold compounds (tables 2, 3 and 4) The current report of Adams and Cecil [2] clearly indicates the value of gold salts in early rheumatoid arthritis The majority of investigators of this form of therapy consider it to have value sufficient that they have continued to employ it The manner of action of gold salts is not known Recent investigations suggest, although they have not proved that gold salts exert their effects at the tissue level probably by changing enzyme actions

WHAT ARE THE LIMITATIONS OF GOLD THERAPY?

Gold salts for arthritis have been flagrantly misused Gold can be *helpful only for rheumatoid arthritis* with the possible exception of palindromic rheumatism [3] (which may be atypical rheumatoid arthritis) Patients with osteoarthritis infectious arthritis or gout and with rheumatic complaints but without arthritis have received gold salts Not all patients with rheumatoid arthritis can be helped by gold therapy Inactive disease and the structural damages cannot be altered by a gold compound nor can it straighten deformed extremities free ankylosed joints or rebuild cartilage and bone The only value to be expected from gold therapy, but a response which is of great benefit when it occurs is that the activity of the disease may be reduced or even arrested Consequently the logical candidates for gold therapy are patients with active rheumatoid arthritis who have little or no articular damage and who are not improving from a good program of therapy employing *all other valuable treatment* procedures In the majority of instances rheumatoid spondylitis is not helped by gold salts Patients with rheumatic fever or diffuse lupus erythematosis usually become worse when treated with gold therapy



The erythrocyte sedimentation rate in relation to gold therapy in a male patient who had complete remission of rheumatoid arthritis He received (*A*) 50 mg gold sodium thiomalate weekly in 1940 from January to June (total dose 1 020 mg) without toxicity and with 4 plus subjective and 4 plus objective benefit Note relapses following discontinuance of gold salts and improvement after reinstitution of gold therapy In 1941 (*B*) he again received 50 mg gold sodium thiomalate weekly (total 840 mg) After a two month discontinuance he received (*C*) aurothioglucose in oil 50 mg weekly for thirteen weeks (650 mg) then 25 mg until a total of 1 225 mg had been given

Another fact important in consideration of the limitations of gold therapy is that relapse or exacerbation frequently occurs after cessation of treatment even though improvement has been of high order (figure) The relapse rate has been reported to be as high as 75 per cent [1] Lack of benefit in some patients and relapses in others in one study [4] indicated that at the end of a five year period there may be little difference in the patient whether or not gold therapy has been used However, this is only one criterion of the effect of gold therapy, it should be remembered that discomfort and incapacitation in fact all effects of the illness, may

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Read before the Joint Session of the Section on Internal Medicine and the Section on Experimental Medicine and Therapeutics at the Ninety Eighth Annual Session of the American Medical Association, Atlantic City N J, June 10, 1949

[1] Steinbrocker O, Traeger, C H and Batterman R C Therapeutic Criteria in Rheumatoid Arthritis J A M A **140** 659 662 (June 25) 1949

[2] Adams C H, and Cecil R L Gold Therapy in Early Rheumatoid Arthritis to be published

[3] Boland E W and Headley N E Treatment of So-Called Palindromic Rheumatism with Gold Compounds Ann Rheumat Dis **7** 246 1948

[4] Ragan C, and Tyson T L Chrysotherapy in Rheumatoid Arthritis Three Year Study of One Hundred and Forty Two Cases Am J Med **1** 252 256 1946

be significantly reduced through the course of disease with the aid of gold salts, so that the patient may have a much more normal life during the five years under consideration Potential toxicity is the chief reason that gold therapy has not been employed more extensively

WHAT TOXICITY IS ENCOUNTERED WITH GOLD SALTS?

Toxicity from gold salts depends on the preparation employed, the manner of use particularly in regard to the dose at each injection, the precautions taken and, of course, the criteria used to evaluate toxicity All preparations of gold that may have therapeutic value also have potential toxicity Gold may act as a parenchymatous cell poison, but in human beings the toxicity appears most often to be on an allergic basis[5] Toxic manifestations may occur at any time during or shortly after treatment, although most often they are encountered after 300 or 500 mg of gold salt have been administered or when gold therapy is reinstituted after a period when it has been discontinued

Table 1—*Therapeutic Results of Gold Salts for Rheumatoid Arthritis Combined from Many Reports Between 1935 and 1948*

		Range %	Average %
Eighteen series of cases total number of patients	4 086		
Arrested or greatly improved		40 to 84	61
Moderately improved		10 to 40	24
Sundelin's report * (1948) number of cases	2,441		
Improved (degree not specified)			90

* Sundelin F Complications Due to Gold Treatment in Chronic Polyarthritis Nord med 37 303-307 (Feb 13) 1948

Table 2—*Summary of Report of Controlled Study of Gold Therapy for Rheumatoid Arthritis by Ellman, Lawrence and Thorold (1940)**

Patients	Preparation Used	Asymptomatic and Normal Erythrocyte Sedimentation Rate Percentage	Total Improved Percentage
60	Aurothioglucose	62	94†
30	Placebo	10	76

* Ellman P Lawrence I S and Thorold G P Gold Therapy in Rheumatoid Arthritis Brit M J 2:314-316 (Sept 7) 1940
† To greater degree than in controls

Manifestations of gold intolerance (toxicity) are many and varied, most common are the cutaneous irritations With few exceptions dermatitis when it occurs, is preceded by pruritus which may be mild or intense localized or generalized so that this symptom is the most valuable alarm signal of developing intolerance Dermatitis may be of many different forms including simple erythema morbilliform rash, pityriasis rosea-like eruption, eczematoid and weeping eruption about the ears eyes mouth and axillas, vesicular dermatitis, discrete lesions resembling lichen planus or even simulating mycosis fungoides and generalized exfoliative dermatitis—the most serious and troublesome to manage These different forms of dermatitis are usually chronic and may produce much discomfort for many months, however, they usually heal completely Stomatitis often occurs with dermatitis, it may exist alone "Metallic" taste may precede stomatitis Other alimentary disorders such as anorrhexia abdominal cramps and ulcerative enterocolitis have been reported Hepatitis, if it is ever due to gold toxicity, is rare Nephritis may occur, and this form of toxicity has not been sufficiently appreciated Blood dyscrasia due to gold seldom occurs, but when it does it may be serious even fatal Thrombopenic purpura, hypoplastic or aplastic anemia and granulocytopenia have been reported Eosinophilia frequently precedes or accompanies gold intolerance and may help to forewarn of toxicity

Table 3—*Summary of Therapeutic Effect of Fraser's Controlled Study of Gold Therapy for Rheumatoid Arthritis (1945)*[8]

	Patients Treated with Gold Compound		Patients Given Placebo	
Improvement	Number	Percentage*	Number	Percentage*
Great	24	42 (56)	4	8 (33)
Moderate	12	21 (14)	6	13 (20)
Slight	11	19 (11)	11	24 (13)
No change	5	9 (10)	10	22 (13)
Worse	5	9 (8)	15	33 (15)
Total	57		46	

* Figures in parenthesis are the patient's independent estimate of effects

Incidence of Toxicity—Toxic complications have been reported with an incidence as high as 51 per cent[6] and as low as 4 per cent[7] The average incidence of all types of toxicity in a large group of cases reported by various authors is 37 per cent In their reports about toxic complications most authors have included minor abnormalities, many of which may not be manifestations of gold toxicity For instance Fraser[8] found that among arthritic patients who received injections of an inert substance not containing gold to control the study of effects of gold salts administered to other patients the physician (who did not know the solution injected was a placebo) considered manifestations of 'gold toxicity" to occur in 27 per cent of cases Mortality, reported to be as high as 3 per cent in 1935, fell to approximately 0 4 per cent for the period 1939 to 1945[9] The lessened mortality results from (1) employment of smaller doses of gold preparations,

Table 4—*Summary of Therapeutic Results in the Controlled Study of Gold Therapy for Rheumatoid Arthritis by Waine, Baker and Mettier (1947)**

State of Disease at End of Observation	Patients Treated With Gold Salt		Patients Treated Without Gold Salt	
	Number	Percentage	Number	Percentage
Arrested	12	21	6	9 7
Decidedly improved	21	36	12	19 4
Improved	14	24	17	27 4
Unimproved	11	19	27	43
Total	58		62	

* Waine H Baker F and Mettier S R Controlled Evaluation of Gold Therapy in Rheumatoid Arthritis California Med 66 [illegible] (May) 1947

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[5] Freyberg R H in Comroe B I Arthritis and Allied Conditions edited by J I Hollander ed 4 Philadelphia Lea & Febiger 1949 p 258

[6] Graham J W and Fletcher A A Gold Therapy in Rheumatoid Arthritis Canad M A J **49** 483 487 1943

[7] Oren H Gold Salts in Treatment of Rheumatoid Arthritis A Report on One Hundred and Fifty Additional Cases M Rec. **159** 420 421 1946

[8] Fraser T N Gold Treatment in Rheumatoid Arthritis Ann Rheumat Di **4** 71 75 1945

[9] Hench P S and others Rheumatism and Arthritis Review of American and English Literature of Recent Years (Ninth Rheumatism Review) Ann Int Med **28** 309-451 1948

(2) greater knowledge of gold metabolism, its clinical effects and signs of toxicity, (3) better clinical and laboratory precautions, and (4) improved treatment of toxicity recently by means of 2,3-dimercaptopropanol (British antilewisite, BAL).

Prevention of Toxicity.—There is no reliable method for determining in which persons toxicity to gold salt will develop. Experience has shown that with reduction of weekly dosage of the gold compound the incidence of toxicity is reduced (table 5) and, what is even more important, the severity of reactions is less.[10] Efforts to lessen toxicity have led to the development of preparations of insoluble gold salts. Although toxicity is reported to be less with these salts, severe dermatitis, stomatitis and nephritis have occurred. When toxicity develops from insoluble gold salts it may persist or recur for as long as two and a half years because the material may remain at the site of injection, from which it is only slowly absorbed, for a long period. Consequently, insoluble gold salts are not recommended.

Precautions.—A physician need not be a specialist in arthritis to administer gold preparations, but only those physicians who know the potentialities, are familiar with the manifestations of early toxicity and have the facilities for necessary laboratory control should attempt this form of therapy. The physician should see the patient before each injection to learn of any symptoms or signs of intolerance. Urinalysis for protein and sediment changes should be performed weekly; hemoglobin and leukocyte determinations should be made at least every two weeks. If indications of blood dyscrasia develop complete study of the blood and even bone marrow should be made.

TABLE 5.—*Incidence of Gold Toxicity in 126 Patients Treated with Gold Sodium Thiomalate in Different Doses*

Weekly Dose of Gold Sodium Thiomalate, Mg.	Incidence of Gold Toxicity, Percentage
100	41
50	30
25	18

TABLE 6.—*Dosage Schedule Recommended for Injections of a Soluble Gold Salt Containing 50 Per Cent Gold, Such as Aurothioglucose in Oil and Gold Sodium Thiomalate*

Intragluteal injections at weekly intervals	
First injection	10 mg. of the gold salt
Second injection	25 mg. of the gold salt
Third to sixteenth or twentieth injection	50 mg. of the gold salt
Further injections of 50 mg. on maintenance plan	

Treatment of Toxicity.—Gold salt should be promptly discontinued and corrective measures employed when toxicity becomes apparent. The effectiveness of 2,3-dimercaptopropanol as an antidote for gold toxicity has been demonstrated by many investigators. If toxicity is severe, the antidote[10] should be administered as recommended for other heavy metal intoxications; the earlier it is used the more beneficial it is. Sometimes gold salt may again be tolerated following mild toxicity. After severe intoxication gold compounds should never be reemployed. Whether or not toxicity has occurred, gold therapy (after its use has been discontinued) should always be reinstituted with great caution and with small initial doses.

WHAT IS THE BEST METHOD OF USE OF GOLD SALTS?

Because of the long retention of gold in the body and because of its potential toxicity, it seems most reasonable to use the smallest amount consistent with good therapeutic results. This axiom accounts for the recent widespread use of smaller doses of gold salt than previously were employed.

Choice of the Gold Compounds.—In choosing the preparation to use as a therapeutic agent the knowledge of the metabolism of gold must be kept in mind. Colloidal preparations are generally inert, for the particles are quickly phagocytized. Insoluble salts are undependable and their behavior unpredictable. Although they may be less toxic, they have less advantage than disadvantage as therapeutic agents. A soluble gold salt such as aurothioglucose in oil or gold sodium thiomalate is recommended, to be injected into adults according to the schedule shown in table 6.

After 1 or 1.5 Gm. of the gold salt has been given, if improvement has not occurred therapy should be discontinued. If improvement has occurred, instead of giving courses of treatment separated by rest periods of three or four months it is now considered desirable to continue treatment less energetically for a prolonged period in an effort to reduce the incidence of relapse; injections of 50 mg. spaced at two week intervals are continued six to ten weeks, after which this dose is given at three week intervals for several months and, finally, monthly for six to twelve more injections (maintenance therapy). Although time has been insufficient for results to be analyzed statistically, this maintenance therapy appears to accomplish the purpose of lessening relapses. For children the dose of gold salt should be proportional to the body surface or weight.

Contraindications.—The chief contraindication to gold therapy is previous severe gold toxicity. Gold salts should be used with great care in persons who are known to have idiosyncrasy to other drugs or who have severe allergic disease. Pregnancy is not a contraindication, although usually the arthritis is so much improved during pregnancy that gold therapy is seldom considered. When another serious systemic illness exists it is best that it be cured or controlled before gold therapy is instituted for arthritis. Age is not a contraindication to use of gold compounds if function of vital organs and nutrition are good.

CAN IMPROVEMENTS BE EXPECTED?

It must be emphasized that when gold salts are beneficial improvement of the patient is not rapid. He should be forewarned that only after several months of gold therapy can he expect to note benefit and that many months of treatment may be required before there is improvement sufficient to decrease his disability. As is true with all other forms of therapy, use of gold salts is not complete treatment for rheumatoid arthritis; it is an adjunct to, not a substitute for, good general care.

Investigations with the objective to improve treatment for rheumatoid arthritis are increasing each year. Progress is being made. However, it seems unlikely that heavy metal therapy will be improved; rather, a different form of treatment may be developed which will replace some current procedures The recent knowledge of the great benefits to patients with rheumatoid arthritis from certain hormones, especially the adrenal cortical hormone, cortisone, and the pituitary adrenocorticotropic hormone, ACTH, is enthusiastically welcomed by everyone The certainty, completeness and speed of the action of these new substances in controlling rheumatoid arthritis are remarkable Patients and physicians throughout the world hope that use of these hormonal substances may soon become practical

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[10] Freyberg, R. H.; Block, W. D., and Wells, G. S.: Gold Therapy for Rheumatoid Arthritis: Considerations Based upon Studies of the Metabolism of Gold, Clinics 1: 537-570, 1942.

As therapeutic improvements develop they should be put into practice An advertisement which appeared about 1880 characterized a rheumatic remedy as "better than gold" Now, seventy years later, it is hoped that cortisone will become the medicament which may be referred to as truly "better than gold" in the treatment of rheumatoid arthritis When therapeutic procedures are developed that are more effective than gold salts, all physicians should abandon this form of treatment Investigators who have been studying gold preparations will be among the first and happiest to discontinue the use of such compounds in favor of superior agents Until improved therapy is available measures at hand must be employed When gold salts are used, they should be given wisely with a full knowledge of their effects, limitations and potential toxicity as well as their potential benefits

ABSTRACT OF DISCUSSION

DR. LESLIE J A PARR Sidney, Australia In 1936 in conjunction with Dr E A Shipton of Australia, I began gold therapy and in 1937 we published our first results—70 cases with 1 death, which occurred after we gave 200 mg of a gold compound At that stage, we reduced our dosage to 50 mg Dr Freyberg has detailed the most important facts concerning gold therapy and has stressed in particular dosage and maintenance dosage We found early that results were as good with 50 mg of a gold salt as with 200 mg Although the improvement was slower the toxicity went from 45 to 25 per cent and that has been our average throughout the years We have not observed any especially severe reactions A number of exfoliative dermatitides responded rapidly to 2,3 dimercapto propanol (BAL) Chrysotherapy was our main method of attack in rheumatoid arthritis until 1938, but we began to encounter so many relapses that we started giving a small maintenance dose of the gold salts at that period In 1944 our patients were given a maintenance dose of 50 mg once a week later every second week, third week, fourth week and, finally, every six weeks Some patients have gone four, five or six weeks on maintenance therapy with complete control of the disease and without relapse We found that many cases of arthritis were refractory to gold therapy, and in consequence of some results with prontosil (diacetylaminoazotoluene), which the Germans investigated many years ago we began looking for a sulfonamide preparation to supplement the action of gold, and we used benzyl sulfanilamide (proseptazine) in 1938 The war interrupted our work, and in 1943 we began more extended trials Benzyl sulfanilamide is slightly different from all the other sulfonamide drugs, and today our method of procedure is first, to attack the disease with benzyl sulfanilamide and then use a gold compound as a second method of attack We find that benzyl sulfanilamide in conjunction with liver extract will give results much more rapid and spectacular than those with gold, and we have kept some of our patients on a benzyl sulfanilamide regimen for three years We have had a 10 per cent rash-type reaction necessitating desensitization but toxicity in many patients can be controlled with 1 to 1½ Gm of benzyl sulfanilamide per day Then we found that in some cases relapse of arthritic symptoms began during sulfonamide therapy, so we gave a gold compound in addition today we give benzyl sulfonamide initially, and if the patient does not respond we may give a gold preparation In the last eighteen months we have also used epinephrine and intravenously administered calcium If one does not get any result using benzyl sulfanilamide within two months, I would advise trying the effect of epinephrine in oil Some physicians will be amazed at the reaction that takes place Since Dr Thorn proved that epinephrine has some effect on the adrenal cortex, it may be that we were using the equivalent of small doses of adrenocortical hormones That may be the explanation We have found—and we have tried this over a period of ten years—that treatment with gold salts takes second place to benzyl sulfanilamide therapy in conjunction with epinephrine but that gold is still a valuable remedy There are two important considerations, the small dosage and the maintenance dosage

DR RICHARD H FREYBERG, New York I have had no experience with the type of treatment discussed by Dr Parr Some physicians have felt that gold therapy has been of value because of the toxicity it produces and that it is desirable to produce toxicity to get the best result I disagree I am sure that good results can be obtained without producing toxicity

ANTIHISTAMINIC AGENTS AND ASCORBIC ACID IN THE EARLY TREATMENT OF THE COMMON COLD

DONALD W COWAN M D
and
HAROLD S DIEHL M D
Minneapolis

Recently there has been widespread interest in the use of antihistaminic drugs in the treatment of the common cold Several enthusiastic papers have appeared in the medical literature These reports have been widely publicized in the lay press, and, since some of the antihistaminic drugs have been released for over-the-counter sale a tremendous advertising campaign has gotten under way

Brewster's reports[1] of 1947 and 1949 were on the use of diphenhydramine (benadryl®) hydrochloride, tripelennamine (pyribenzamine®) hydrochloride, pyranisamine maleate (neo-antergan®) and methapyrilene (histadyl® and thenylene®) hydrochloride He was the first to emphasize the importance of the early use of these drugs in the treatment of the common cold In his 1949 series, all symptoms were aborted in 19 of 21 patients who started medication within the first hour and in 48 of 55 patients who started medication within two hours of onset One may reasonably ask how many of these patients actually would have continued to have symptoms if no treatment whatsoever had been given His control series was inadequate to answer this question, since only 2 patients received the "control" (codeine-papaverine) medication during the first hour and none during the second hour of symptoms Thus, it would appear from his graphs that, of all patients treated with either antihistaminic agents or codeine-papaverine during the first twelve hours of symptoms, only 9 per cent of the controls (2 patients) began treatment during the first two hours, while 20 per cent of the experimental group did so When the graphs are referred to again and when only those colds treated after the symptoms had lasted at least two hours but before the cold was twelve hours old are considered, the results would appear to be as follows of 215 patients receiving antihistaminic therapy, 111 (52 per cent) were "cured," 100 (46 per cent) were improved

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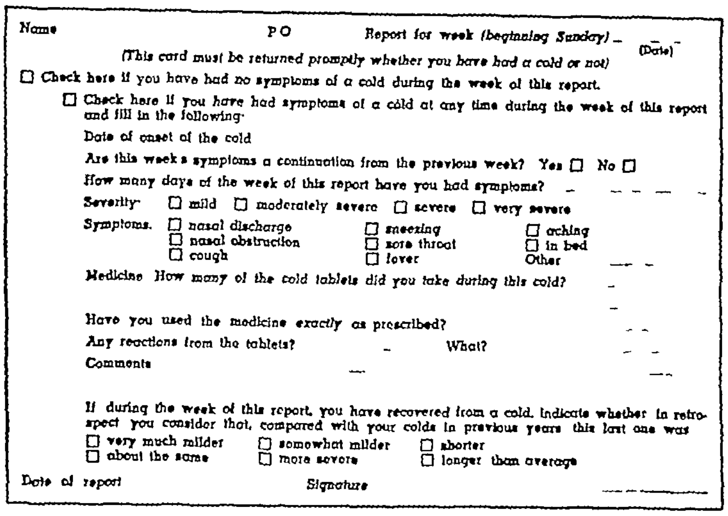
From the Students Health Service University of Minnesota Minneapolis.

[1] Brewster J M Benadryl as Therapeutic Agent in Treatment of the Common Cold U S Nav Med. Bull 47:810 (Sept.-Oct) 1947 Antihistaminic Drugs in the Therapy of the Common Cold U S Nav Med Bull 49 1 (Jan Feb) 1949

and 4 (2 per cent) were not improved, of 20 patients receiving codeine-papaverine, 6 (30 per cent) were "cured," 11 (55 per cent) were improved and 3 (15 per cent) were not improved

Gordon's report[2] of December 1948 concerned the use of diphenhydramine tripelennamine and phenindamine tartrate (thephorin®) in the treatment of infections of the upper respiratory tract among 500 patients He, too was enthusiastic Other forms of treatment were combined with the antihistaminic therapy in at least some of his patients and he had no control series



Name P O Report for week (beginning Sunday) ____ (Date)

(This card must be returned promptly whether you have had a cold or not)

☐ Check here if you have had no symptoms of a cold during the week of this report.

☐ Check here if you *have* had symptoms of a cold at any time during the week of this report and fill in the following·

Date of onset of the cold

Are this week's symptoms a continuation from the previous week? Yes ☐ No ☐

How many days of the week of this report have you had symptoms? ____

Severity· ☐ mild ☐ moderately severe ☐ severe ☐ very severe

Symptoms. ☐ nasal discharge ☐ nasal obstruction ☐ cough ☐ sneezing ☐ sore throat ☐ fever ☐ aching ☐ in bed Other ____

Medicine *How many of the cold tablets did you take during this cold?* ____

Have you used the medicine *exactly* as prescribed? ____

Any reactions from the tablets? ____ What? ____

Comments ____

If during the week of this report, you have recovered from a cold, indicate whether in retrospect you consider that, compared with your colds in previous years this last one was

☐ very much milder ☐ somewhat milder ☐ shorter

☐ about the same ☐ more severe ☐ longer than average

Date of report Signature ____

Fig 1 Card on which subjects reported the presence or absence of symptoms the severity of symptoms and the effectiveness of the medication during the week of the report

Murray[3] reported that tripelennamine produced more so-called cures and more relief from annoying symptoms of the common cold than any other treatment used in the medical department of the Dennison Manufacturing Company in the past twenty-eight years His conclusions were based on an uncontrolled study in which he treated 510 patients with early head colds

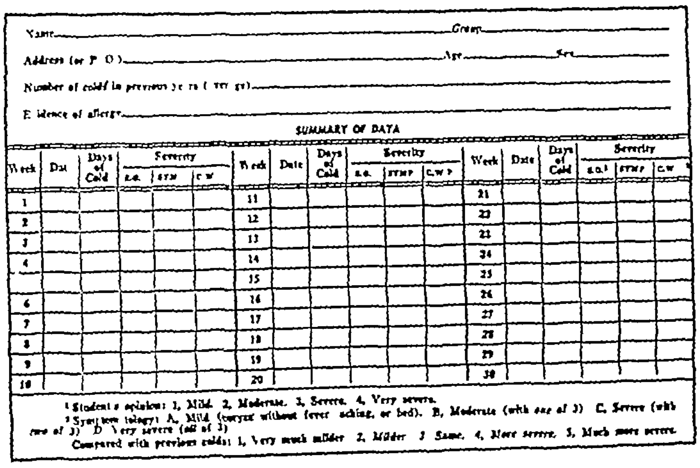
The most dramatic results were reported by Arminio and Sweet[4] in December 1949 They used thonzylamine (neohetramine®) hydrochloride in the prophylaxis and treatment of the common cold in three institutions—a large state penitentiary, a convent and a seminary In the prophylaxis experiment 300 patients took doses of thonzylamine hydrochloride every day over a period of about six months At the same time 300 control subjects took placebo tablets at the same rates Of the former group 200 took either 100 or 150 mg of thonzylamine hydrochloride daily and of these 91 per cent had no cold symptoms whatever during the entire period 6 5 per cent had first phase colds lasting only twenty-four to forty-eight hours and only 2 5 per cent had second and third phase colds One hundred subjects took 50 mg of thonzylamine hydrochloride every day, and of these 83 per cent had no symptoms of colds during the entire period 5 per cent had first phase colds and 12 per cent had second and third phase colds In not one of the 300 patients taking thonzylamine regularly did cough, malaise nasal obstruction or fever develop over the entire six month period Reactions to thonzylamine were practically nonexistent mild reactions developed in 11 of the 100 subjects who took 150 mg per day, but none of the other 200 subjects taking thonzylamine complained of *any ill effects whatever* Among the 300 control subjects, 241 had one or more colds—some as many as five or six, 179 of these were severe colds and "practically all eventually required extensive therapy", complications such as pneumonitis, bronchitis and sinusitis developed in 11 subjects

The treatment group reported by Arminio and Sweet contained over 300 patients One third of these received 50 mg of thonzylamine hydrochloride three times a day for three days, another third received the placebo medication and the rest received the usual cold treatment (acetylsalicylic acid, nose drops and lozenges) It was noted that 100 per cent of the subjects who began thonzylamine treatment during the first forty-eight hours after the onset of symptoms responded to therapy This treatment when begun within the first twenty-four hours, relieved colds in one-fifth the time, as compared with the placebo series and, if the drug was given during the second twenty-four hours the time required for complete relief was reduced by half as compared with the placebo series It was pointed out that thonzylamine is of no value once there has been secondary invasion

Phillips and Fishbein used caubren® compound (25 mg chlorothen citrate 320 mg acetophenetidin and 32 mg caffeine) for the treatment of colds in an industrial plant They controlled their experiment by giving acetylsalicylic acid tablets to about an equal number of subjects The average duration of the colds was about half as long for the group given the caubren® compound as for the group given acetylsalicylic acid, and again these authors point out that the earlier the antihistaminic therapy is begun the better Reactions were more frequent among those taking acetylsalicylic acid than in the experimental group

OUTLINE OF PRESENT STUDY

In the fall of 1948 we began a controlled experiment in an attempt to evaluate the antihistaminic agents as a method of treatment of the common cold We were interested also in trying large doses of ascorbic acid, since one of our earlier experiments[6] indicated a possible (though slight) effect of this substance in the prevention of colds



Name ____ Group ____

Address (or P O) ____ Age ____ Sex ____

Number of colds in previous years (average) ____

Evidence of allergy ____

SUMMARY OF DATA

Week	Date	Days of Cold	Severity s.o.[1]	Severity s.t.m.[2]	Severity c.w.[3]	Week	Date	Days of Cold	Severity s.o.[1]	Severity s.t.m.[2]	Severity c.w.[3]	Week	Date	Days of Cold	Severity s.o.[1]	Severity s.t.m.[2]	Severity c.w.[3]
1						11						21					
2						12						22					
3						13						23					
4						14						24					
						15						25					
6						16						26					
7						17						27					
8						18						28					
9						19						29					
10						20						30					

[1] Student's opinion: 1, Mild. 2, Moderate. 3, Severe. 4, Very severe.

[2] Symptomatology: A, Mild (coryza without fever aching, or bed). B, Moderate (with one of 3) C, Severe (with two of 3) D Very severe (all of 3)

Compared with previous colds: 1, Very much milder 2, Milder 3 Same. 4, More severe. 5, Much more severe.

Fig 2—Individual master sheet for each student on which weekly information from each subject on cold prevention in 1948 1949 was summarized

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2 Gordon J S Antihistaminic Drugs in the Treatment of Upper Respiratory Tract Infection, Laryngoscope **58** 1265 (Dec) 1948

3 Murray, H G The Treatment of Head Colds with an Antihistaminic Drug, Indust Med **18** 215 (May) 1949

4 Arminio, J J, and Sweet C C The Prophylaxis and Treatment of the Common Cold with Neohetramine, Indust Med **18** 509 (Dec) 1949

5 Phillips W F P and Fishbein W I An Antihistaminic Analgesic Preparation in the Therapy of Colds Indust Med **18** 526 (Dec) 1949

6 Cowan D W, Diehl H S and Baker A B Vitamins for the Prevention of Colds J A M A **120** 1268 (Dec 19) 1942

We had intended to make this a two year study, but, because the antihistaminic drugs have now been released for over-the-counter sale it is obvious that some difficulty might be encountered in keeping the control group strictly controlled, therefore, we are reporting the relatively small series observed during the school year 1948-1949 before antihistaminic drugs were available without prescription

The subjects were University of Minnesota students who volunteered to join the group because they were especially susceptible to colds and because colds constituted a real problem to them On enrolment in the group each subject was asked to fill out a questionnaire Then, after a brief discussion he was given a box of medicine with written instructions to take one dose at the first symptoms of a cold and to repeat the dose every four hours until the cold was definitely 'cured' or until the medicine (10 doses) was used up The medicaments were given out in strict rotation to the students as they enrolled, as follows group 1—placebo (citric acid to simulate the taste of ascorbic acid lactose cornstarch sugar talc and stearic acid), group 2—ascorbic acid, 667 mg, plus the binders and fillers previously mentioned, group 3—phenindamine tartrate, 25 mg, plus citric acid, lactose and binders, group 4—ascorbic acid, 667 mg, plus phenindamine tartrate, 25 mg, plus binders, and group 5—tripelennamine hydrochloride 50 mg, plus citric acid and binders in special large white tablets to look like the others Each subject was instructed to return for more of his medicament whenever needed so that it would always be available for the early treatment of any cold that might occur

Each week the subject received a report card (fig 1) for reporting the presence or absence of symptoms during the week of the report, the severity of symptoms and the effectiveness of the medication These weekly reports were summarized on a master card (fig 2) for each student, and the data from the master cards were used to tabulate the results of the entire study

Of the 430 subjects enrolled at the beginning of the study the records of 367 (85 4 per cent) were used in tabulating the final results These 367 students treated 980 colds during the period of the study (December 1948 to April 1949) The reasons for dropping the other students were as follows 1 It was found during the course of the study that 12 enrollees were definitely allergic, although by questioning each applicant as he applied, we had tried to keep out of the group all those whose colds were probably allergic in nature These 12 were referred to an allergy clinic for study and treatment 2 Twenty-five students failed to send in their

TABLE 1—*Antihistaminic Drugs and Ascorbic Acid in Treatment of Colds*

	Group 1 (Placebo)	Group 2 (Ascorbic Acid)	Group 3 (Phenindamine Tartrate)	Group 4 (Ascorbic Acid plus Phenindamine Tartrate)	Group 5 (Tripelennamine Hydrochloride)
Number of subjects in group at completion of study	76	77	73	71	70
Average number of colds per year in previous years *	5 4	5.6	6 2	6 1	5.2
Total number of colds treated in study	207	213	198	172	190
Average duration of colds in previous years (days) *	13 0	12 2	11 5	10 8	13 0
Average duration of colds treated in this study (days)	5 1	5 6	5 7	5 6	5 2
Percentage of reduction in duration	61	54	50	48	60
Number of patients reporting reactions	7 (9%)	7 (9%)	12 (16%)	13 (18%)	13 (19%)

Reported from memory

TABLE 2—*Severity of Treated Colds in This Study (Percentage of Total Colds in Group)*

	Group 1 (Placebo)	Group 2 (Ascorbic Acid)	Group 3 (Phenindamine Tartrate)	Group 4 (Ascorbic Acid plus Phenindamine Tartrate)	Group 5 (Tripelennamine Hydrochloride)
1 Student's opinion as to severity					
Mild	54	51	49	48	57
Moderate	28	26	35	35	30
Severe	13	19	11	12	11
Very severe	5	4	5	5	2
2 Based on symptoms					
Mild	75	72	73	69	78
Moderate	19	18	16	25	17
Severe	4	8	8	5	3
Very severe	2	2	3	1	2
3 Student's opinion as to comparison with previous colds					
Much milder	42	40	35	34	37
Somewhat milder	33	32	38	33	32
About the same	17	20	18	22	25
More severe	8	8	9	11	6
Shorter	27	23	28	28	35
Longer	4	8	5	7	4
Presumably neither shorter nor longer than usual	69	69	67	65	61
4 Percentage of colds lasting less than 4 days	47	39	44	43	45
5 Percentage of colds lasting only 1 or 2 days		25	23	24	20

See text for basis of classification

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[7] The special tripelennamine hydrochloride tablets were furnished by Ciba Pharmaceutical Products Inc Summit N J The other preparations including the placebo were furnished by Hoffmann LaRoche Inc Nutley N J

reports, either because of cancellation from school or failure to cooperate 3 Twenty-four students reporting regularly had no colds during the entire period of the study and, therefore, had no opportunity to try the medicine given them 4 Two students refused to continue to take the medicine because of "reactions " One of these complained only of the bad taste of the tablet (tripelennamine), and the other became weak and dizzy on each of two attempts to take the medicament (phenindamine) In our series (table 1), the antihistaminic agents alone, ascorbic acid alone, or phenindamine plus ascorbic acid did not shorten the average duration of colds in their groups of subjects It is emphasized that all students were instructed to start the medication at the earliest symptom Some students no doubt waited for several hours to begin medication but we have no reason to believe that the time interval factor would not have operated the same for all groups including the group taking placebo

It is interesting that 7 of the subjects taking placebo reported "reactions " Two reported headache from the placebo tablets (1 stated that it occurred every time he took the medicament), 2 reported a mild sedative effect, 1 reported increased frequency of urination, 1 reported nausea, and 1 reported angioneurotic edema of the lip Seven patients in the group taking ascorbic acid also reported reactions dryness of the mouth, 2, increased frequency of urination, 1, nausea, 1, headache, 1, sleeplessness, 1, and "bad taste," 1 Phenindamine caused the following reactions in 12 patients stomach upset, 4, headache, 3, sleeplessness, 2, "dopey" feeling, 1, dizziness, 1, and difficult and painful urination, 1 In addition, it will be remembered that 1 patient dropped out of the study because of severe dizziness and fainting after taking phenindamine Reactions to the ascorbic acid and phenindamine combination occurred in 13 patients headache alone, 2, headache, sleepiness and loss of appetite, 1, drowsiness, 3, sleeplessness, 2, dizziness, 2, excessive perspiration 1 increased frequency of urination, 1, and slight weakness and faintness, 1 The reactions to tripelennamine in 13 patients were drowsiness alone, 6, dizziness alone, 2, dizziness and drowsiness, 1, dizziness and headache, 1, stomach irritation, 1, increased frequency of urination, 1, and sleeplessness, 1 In addition, 1 subject refused to continue the experiment because of the bad taste of the tripelennamine hydrochloride tablets

Table 2 represents an attempt to compare the relative severity of the treated colds in each of the five groups This is presented in five different ways 1 The student's own opinion as to the severity of his symptoms 2 Our estimate, based on the symptoms checked on the report card by the student, this classification was (*a*) mild if there was coryza but no fever and no aching and the patient did not have to go to bed with the cold, (*b*) moderate if either fever or aching was present or bed rest was required, (*c*) severe if two of these criteria were met and (*d*) very severe if all three of these criteria were met 3 Comparison with previous colds (student's opinion) after the cold was completely over, the subject was asked to tell whether he thought it had been much milder, somewhat milder, about the same, or more severe and whether it had been shorter or longer than the usual previous colds 4 The proportion of all colds in each group which lasted less than four days each 5 The proportion of colds in each group which lasted less than three days None of these comparisons indicates that any of the experimental groups fared better than the control group

We received many enthusiastic reports, both written and oral, from the subjects of the cold study However, some of the most glowing testimonials came from members of the control group The first request we received this fall concerning information on the availability of our "cold pills" came from a student who had been in the study series and who had since been graduated We answered that the material was not yet available commercially in the form administered here but that we still had some in stock and would give him some, if he liked He made a special trip from the northern part of the state to get the drug, whereupon it became necessary for us to look up his record He had been in the placebo group

SUMMARY

Under the conditions of this controlled study, in which 980 colds were treated in 367 supposedly nonallergic students, there is no indication that ascorbic acid alone, phenindamine tartrate (thephorin®) alone, ascorbic acid plus phenindamine or tripelennamine (pyribenzamine®) hydrochloride have any important effect on the duration or severity of these infections of the upper respiratory tract

ORALLY GIVEN MEPHENESIN IN INFANTILE CEREBRAL PALSY

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The treatment of cerebral palsy at the present time centers about muscle relaxation and reeducation The modalities employed in training a child are well defined and are executed in specific phases during the progress of a patient The training period is long and tedious and may well be compared in chronicity to the educational program of a normal child in his primary school Surgical procedures, external bracing and medication are considered adjuncts only

Many children manifesting the various types of cerebral palsy have been subjected to the administration of barbiturates, belladonna, scopolamine, stramonium, neostigmine and other preparations in the hope of release from the abnormal state The results over a long period of time have been variable if not indifferent

A definite aid in treatment might be a nontoxic drug with few or no undesirable effects Such a preparation should be palatable to children It should produce the desired degree of relaxations or stability for a sufficient period of time to allow a child to acquire new motor patterns or to perfect existing ones The recent reports on the effect of mephenesin (tolserol® [3-ortho-toloxy-1,2-propanediol]) in spastic and athetoid states are interesting and suggest that this drug may be a precursor of progressive developments in this field of therapy

The British pharmacologists Berger and Bradley found that mephenesin produced muscle relaxation without unconsciousness Stimulated by their observations Stephen and Chandy,[1] Schlesinger and others [2]

Mephenesin (*tolserol®*) for this study was supplied by E R Squibb & Sons

[1] Stephen, C R. and Chandy J Canad M A J 57 463 (Nov) 1941

[2] Schlesinger *E B*, *Drew*, *A L*, *and Wood* B Clinical Studies in the Use of Myanesin Am J Med 4 365 (March) 1948

and Gammon and Churchill[3] observed the clinical effects in human beings Initial observations were made by use of preparations intravenously Suppression or complete alleviation of choreoathetotic states and diminished spasticity were noted These results were accomplished within a safe therapeutic range

Undesirable effects noted during intravenous injections were nystagmus, circumoral numbness, blurred vision, oral dryness, corneal injection, muscular incoordination, drowsiness and slight decrease in systolic blood pressure These phenomena promptly disappeared when administration of the drug was stopped The beneficial effects were also transitory The brief period of rendering the abnormal neuromuscular mechanisms quiescent by the intravenous route limits the practical value

Gammon and Churchill noted moderate relief in parkinsonism with oral medication of 2 to 3 Gm doses They are able to demonstrate a reduction in spasticity in a postencephalitic quadriplegic patient by hourly doses of 2 Gm through a two week period Two of their subjects demonstrated a white blood cell count of 3,000 after large doses

Berger and Schwartz[4] administered mephenesin orally in a palatable vehicle with apparently satisfactory results in certain cases of cerebral diplegia and choreiform movements They concluded that oral medication produced most of the beneficial effects observed after intravenous injection The drug seemed to be well tolerated over many weeks

At present it is thought that the major therapeutic effects are the result of a differential depression of the basal ganglia, thalamus and brain stem From these studies no severe toxic symptoms have been observed The exact mode of breakdown or conjugation of mephenesin is not specifically known In part it may be conjugated with glucuronic acid Plasma levels in dogs have been carefully measured, and ninety minutes after injection no free mephenesin could be detected in the blood stream The output of free mephenesin parallels the conjugation of the drug in the plasma Berger and Schwartz[4] could demonstrate the metabolic products in the urine as early as fifteen minutes after oral administration Wyngaarden, Woods and Seevers[5] measured the output in dogs and found that the greatest amount of excretion occurs in three to four hours Up to 42 per cent of the drug is excreted in the first twenty-four hours

CLINICAL MATERIAL

These observations stimulated me to attempt an evaluation of the drug in a carefully controlled group of children afflicted with several types of cerebral palsy Twenty-seven patients ranging from 3 to 21 years of age were selected[6] These children were given mephenesin in tablet form (one tablet contains 250 mg of the drug) The severity varied from moderate manifestations in ambulant children to severe involvement in nonambulant patients None had hearing defects Five wore corrective glasses Speech involvement varied from incoherent vocalization, slow labored word formation and reversed breathing to normal Periodic notes were kept by room teachers, physical and occupational therapists and speech correctionists Parents were requested to note any change in motor venture accomplishment at home plus changes in behavior and general demeanor From time to time at short intervals administration of the drug was temporarily discontinued in a number of subjects The accompanying table details the cases as classified in clinical charts

DOSAGE

Four doses of mephenesin a day were given, twenty minutes before meals and one-half hour prior to retiring Children under 10 years of age were given 1 Gm a day initially as four tablets (1-1-1-1) Children over 10 years of age were started at 1 5 Gm as six tablets (2-2-1-1) From five days to a week the dose was increased by adding one (or more) tablet per meal Thereafter, monthly, the dosage was increased to tolerance as determined by vertigo or other undesirable effects, i e, six (2-2-1-1) to seven (2-2-2-1) or eight (3-2-2-1) tablets The average doses over a prolonged period of time were between 0 75 and 3 Gm The tolerance in general was governed by the size of the child Those under 10 years of age averaged 1 5 Gm Many children over 10 years of age could take 3 Gm without side effects For example, a 6½ year old athetoid child weighing 28 pounds (12 7 Kg) could take only 1 Gm in four doses per day An 11 year old spastic quadriplegic child weighing 57 pounds (25 9 Kg) handled with ease 2 Gm A 15 year old child with tension athetosis who weighed 105 pounds (47 6 Kg) tolerated 2 5 Gm Sex did not make any appreciable difference in dose toleration Not appreciated initially in the program was the bedtime dose It was observed by some parents after a month that sleeping habits of the children were improved Morning vertigo was controlled by a decrease in the breakfast dosage and an increase in the noon dosage

Clinical Status of Twenty Seven Patients Given Mephenesin

Spasticity	
Quadriplegic	4
Paraplegic	3
Hemiplegic	1
Athetosis nontension	5
Athetosis tension	11
Rigidity	3
Total	27

EXCRETORY AND BLOOD STUDIES

Eight children were followed for two weeks by daily urine examinations The specimens were taken approximately one hour after the noon dose Ehrlich's diazo reagent was employed for coloration values All children had 2 plus to 4 plus elimination values during the first week Mephenesin was discontinued Sunday night of the first week, urine tests were continued each day for seven successive days The urine of 7 children did not contain the drug at seventy-two hours The urine of 1 child contained a trace up to the fourth day The blood cell counts of these children were determined throughout the program up to seven months No appreciable changes in red blood cells or hemoglobin content or variations in the white blood cells were noted

UNDESIRABLE EFFECTS

Vertigo was experienced by most children when mephenesin was first given At the initial dosage level this phenomenon was transient It appeared at subsequent increases in dosage, more often after the morning dose One 60 pound (27 2 Kg) 8 year old child with tension athetosis did well on 1 Gm with little or no vertigo His time distance factor in walking improved His arms relaxed At a dosage of 1 5 Gm he experienced moderate dizziness sufficient to interfere with ambulation Decreasing the dosage to 1 Gm did not alleviate the vertigo—his treatment with the drug was discontinued after fifty-five days

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[3] Gammon G D and Churchill J A Effects of Myanesin upon the Central Nervous System Am J M Sc. **217** 142 (Feb) 1949

[4] Berger F M and Schwartz, R P Oral Myanesin in Treatment of Spastic and Hyperkinetic Disorders J A M A **137** 772 (June 26) 1948

[5] Wyngaarden J B Woods L A and Seevers M H Plasma Levels and Urinary Excretion of Injected Myanesin in Dogs Proc. Soc. Exper Biol & Med **66**:256 (Oct) 1947

[6] From the Orthopedic Clinic Blodgett Memorial Hospital the Junior League Cerebral Palsy Nursery School the Orthopedic School and the Mary Free Bed In Patient Cerebral Palsy Unit

Nausea and vomiting was produced by a 1 Gm dose in a spastic quadriplegic child Treatment was discontinued at the end of two weeks Irritability developed in 2 children A spastic quadriplegic child 13 years of age seemed to be excited and cried continually Administration of the drug was stopped after two weeks An 8 year old atypical (shudder) athetoid boy receiving 1 Gm per day seemed to have less thrust to his athetosis, and his speech, though unintelligible, required less effort and was less explosive The dose was increased to 1 5 Gm one month later, which excited the boy to almost clonic convulsive movements Administration was stopped, and the child would not take the drug again We have no satisfactory explanation for this reaction

In 2 children the undesirable reaction of listlessness developed while they were receiving dosages insufficient to demonstrate desirable effects There were 5 complete failures One child did not return at regular intervals to permit evaluation of results Four children (14 per cent) could not tolerate the drug in sufficient dosage to produce objective beneficial effects In these 4 instances treatment was discontinued four days to two weeks after it was begun

BENEFICIAL EFFECTS

Spasticity—Of 8 spastic children, 2 did not tolerate the drug The remaining 6 subjects, over a period varying from two to seven months, did not demonstrate sufficient objective improvement in speech, self help, ambulation or personal appearance to justify a continuation of the drug One paraplegic boy aged 20 wished to continue receiving the drug and at the time of writing is still taking 2 Gm per day He stated, "I feel better and think that my stride is longer, without so much effort "

Rigidity—Three children (3, 5 and 5 years of age) demonstrated no changes in rigidity to the therapists or parents Administration of the drug was stopped in these children after sixty days

Athetosis—Nontension Five children were classified as having nontension athetosis Three of these subjects demonstrated improvement to the speech therapist Lip movements were of less amplitude, and word formation was more distinct Tongue control seemed to be easier No change in breathing problems were noted One of these, a boy aged 15, had less overflow in his arms when walking A second of these 3 was less restless in school, his attention span was increased, as observed by his room teacher After this child, aged 8½, had received the drug for one month he was able to have his hair cut without someone's holding his head, for the first time in his life The remaining 2 children did not demonstrate satisfactory objective improvement to the staff

Tension Eleven children with tension athetosis demonstrated some improvement in the four fields of total motor function

Speech Seven children were noted to expend less effort in lip placement The time element in forming words was less Tongue placement seemed easier One child demonstrated a decrease in tremor of the tongue Word formation in general was clearer and more understandable to the grade room teacher

Self help Nine children demonstrated less tension in muscles of the shoulder and arm groups The small muscles of the hand were more relaxed, and the release mechanism from grasp was more easily accomplished A 10½ year old boy and a 20 year old girl obtained pronation-supination improvement sufficient to use a screw driver and turn faucets The girl learned to handle and cut with dressmaking scissors

Gait Little change in gait was noted except in 2 children Four of the children were nonambulant at the initiation of the program and did not make appreciable gains during the trial period One boy increased his time-distance factor by 50 per cent but demonstrated no improvement in rhythm or grace while walking A 20 year old girl learned heel-toe gait and exerted less effort in walking She secured control sufficient to operate the foot treadle on an old-fashioned sewing machine

Personal appearance Three younger girls, 3½, 6 and 6½ years of age, with speech defects, grimaced less in speech effort Pursing the lips was easier The child aged 3½ years demonstrated no change in her drooling

Sleeping habits improved in 4 children, 8 years of age and younger They stretched out in bed and did not roll or toss One older boy offered the statement that he "slept like a log "

COMMENT

The general opinion of the staff was that there was more consistent improvement in the subjects with tension athetosis Children over 10 years of age seemed to respond better than the younger subjects In the over 10 age group hand skills, which one would expect to be well developed in the normal child, seemed to improve with mephenesin therapy Paradoxically, however, balance and gait did not seem to parallel the upper extremity gain It was the opinion of the speech instructor and physical and occupational therapists that the drug certainly deserves a trial in the athetoid group

SUMMARY

1 Orally given mephenesin (tolserol®) was well tolerated over a seven month period in 23 children (86 per cent) of a test group of 27 subjects with infantile cerebral palsy

2 No undesirable results were manifest in blood and urine studies

3 Vertigo, nausea, vomiting, irritability and listlessness were undesirable side effects noted in children receiving doses up to 2 Gm Vertigo was in most cases easily controlled by change in dosage

4 Children with spasticity and rigidity did not respond satisfactorily in the group evaluated (They constituted 38 2 per cent of children tolerating the drug)

5 Of 16 athetoid children, 14 demonstrated beneficial effects (87 per cent) (They constituted 60 8 per cent of the 23 children tolerating the drug) Children with tension athetosis seem to have a favorable response to mephenesin more consistently than other groups

Clinical Notes, Suggestions and New Instruments

MURAL BACTERIAL ENDOCARDITIS PRODUCED BY PROTEUS

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and
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The Proteus organisms are widely distributed in nature, and in their ubiquity and activity they probably rank second only to the cocci They are commonly found in garden soil, on vegetables and rotten meat and in sewage A high percentage of normal stools are found to contain the organisms For many years after the isolation of the Proteus in 1885 by Hausser they were thought to be simple harmless saprophytes though reports of human infections appeared periodically and continuously thereafter in the literature. Most observers now believe that, although the organisms are saprophytes, they are potential pathogens or opportunists for in certain favorable circumstances they can produce severe local lesions and even fatal disease processes From time to time the organisms have been implicated in a variety of pathologic conditions such as acute enteritis, food poisoning, war wounds, urinary tract infections, meningitis in newborn infants chronic otitis media and secondary meningitis and abscess of the brain, and septicemia

The following case of pure mural bacterial endocarditis is of interest because the isolated organism was an unusual strain of Proteus Furthermore, the vegetation was confined to the endocardium without involving the valve leaflets

REPORT OF CASE

Mrs R B, a woman aged 55, was admitted to the hospital Nov 5 1948 with recurrent severe shaking chills and fever of several weeks' duration The chills occurred about every three to six days and lasted six to eight hours with accompanying fever (103 to 104 F) During the period of remissions, the temperature was within normal limits and the patient was fairly comfortable For several years she had experienced moderate dyspnea on exertion and was known to have a cardiac disability

An electrocardiogram taken on admission showed auricular fibrillation, and a roentgenogram of the chest revealed enlargement of the right side of the heart without parenchymatous change in the lungs Intravenous pyelogram and retrograde pyelograms revealed essentially normal conditions A urine specimen obtained by cystoscopy showed many red and white blood cells and numerous gram-negative bacilli The serum agglutination tests were negative for typhoid, paratyphoid, Brucella abortus and Proteus OX^{19} Malarial parasites were not seen in the blood smears on three separate occasions The range of the hemogram, taken at various periods during the course of the disease, was hemoglobin 58 to 61 per cent, red blood cells 2 84 to 3 08 millions and white blood cells 14,500 to 20 200 per cubic millimeter, stab neutrophils 5 to 14 per cent, segmented neutrophils 65 to 83 per cent lymphocytes 8 to 22 per cent monocytes 1 to 5 per cent and eosinophils 0 to 2 per cent. Blood cultures made after the chills on three separate days were all positive for Proteus organisms

The septicemia with its chills and fever was uncontrolled by penicillin or streptomycin and after a period of auricular fibrillation the patient suddenly expired Dec 1, 1948 with symptoms of cerebral embolism

AUTOPSY

At autopsy an enlarged heart (400 Gm) with mitral stenosis was found The mitral valve was thickened and typically funnel-shaped the atrium was decidedly dilated A large fungating vegetative growth which was grayish brown, soft and friable filled the left auricle and extended to the lateral wall of the atrium The valve was uninvolved by the vegetation The pertinent observations in the other organs were those of embolic phenomena Petechial hemorrhages and focal scarring were noted in the kidneys The spleen was soft and bulging, it contained multiple large abscesses filled with purulent material Pure cultures of an organism identical to that obtained from the blood stream while the patient was alive were grown from the vegetation in the heart and from the splenic abscesses

The isolated organisms, although belonging to the Proteus group, differed from the usual strains of the organism in producing hydrogen sulfide[1]

Microscopically the vegetation in the heart consisted of a mass of hyalinized fibrin and platelets interspersed by round cells, polymorphonuclear leukocytes and innumerable bacilli In many areas the organisms were aggregated in large clumps Portions of the vegetation were relatively fresh, as the fibrin was loose and the entrapped erythrocytes and leukocytes appeared well preserved The fibrous base of the vegetation, which merged with the underlying endocardium, contained fresh and old hemorrhages, small deposits of calcium and a scattering of lymphocytes and plasma cells The myocardium was degenerated, and its muscle bundles were separated by edema and interstitial fibrosis

In the spleen multiple large and small purulent abscesses were seen The larger lesions were walled off by fibrous connective tissue, but the others were poorly encapsulated A few clumps of bacteria were present in some areas The surrounding pulp was hemorrhagic, edematous and infiltrated by many plasma cells and polymorphonuclear leukocytes

In the kidneys cloudy swelling and patchy areas of hyaline droplet degeneration were seen Several of the tubules were filled with granular casts, and an occasional vessel contained bacterial organisms Patches of scarring were present in the subcapsular area. In a number of the glomeruli focal hyaline lesions representing the so-called focal embolic glomerulonephritis, were noted

No unusual features were observed in the liver, spleen, pancreas or adrenals The lungs had areas of atelectasis and emphysema and foci of mild leukocytic infiltration

COMMENT

Pure mural bacterial endocarditis with vegetation confined to the endocardium without involving the valve is relatively uncommon The predisposing factor in this case was apparently the presence of mitral stenosis The portal of entry of the organism was not determinable

Although bacterial endocarditis is a common occurrence and has been produced by a wide variety of organisms, that caused by the Proteus is unusual and rare Furthermore, the organism isolated in this case was an unusual strain, differing from the established types by producing hydrogen sulfide. In view of the fact that the Proteus is ordinarily considered a saprophyte, it seems that practically every type of bacterial organism in favorable circumstances can produce endocarditis There is little doubt that Proteus organisms are potential pathogens and that they can produce severe and even fatal disease processes

Focal glomerular lesions consisting of hyaline thrombi such as are commonly associated with bacterial endocarditis, were found in this case For these lesions the term focal embolic glomerulonephritis has been used, with the implication that the lesions are produced by showers of minute emboli liberated from the cardiac vegetation which lodge and damage glomerular tufts That this is the mechanism of pathogenesis of the renal lesion has been questioned

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From the Department of Pathology and the Department of Medicine Marquette University School of Medicine and St Joseph's Hospital.

Dr W A D Anderson professor of pathology Marquette University School of Medicine assisted in the study and preparation of this case report

[1] Studies made on the cultures by the Laboratory of the United States Public Health Service and the Enteric Center in Copenhagen Denmark brought a similar conclusion Full details of the bacteriologic studies of the organism are being published in another paper

CONCLUSION

A case of pure mural bacterial endocarditis produced by a new strain of Proteus is reported The vegetative growth was confined to the endocardium of the left atrium without involving the mitral valve

5000 West Chambers Street

TOXIC PSYCHOSIS DUE TO PROPHENPYRIDAMINE (TRIMETON®)

Report of a Case

ALVIN R YAPALATER, M D
and
FRED V ROCKWELL, M D
Valhalla, N Y

The following case report is submitted as an example of a toxic reaction to an antihistaminic drug, prophenpyridamine (trimeton®) Although toxic symptoms ascribed to the reaction of the central nervous system to prophenpyridamine (drowsiness, nervousness, listlessness, dizziness, irritability and even mild transient amnesia) have been described in recent papers in the literature,[1] so far as we can determine a case of a major toxic psychosis has not been reported up to the present time

REPORT OF A CASE

C P, an 18 year old white Catholic youth, was admitted to the Grasslands Psychiatric Institute on the recommendation of the family physician on Thursday night, Sept 1, 1949 The patient had been seen in consultation with a psychiatrist, who made a presumptive diagnosis of schizophrenia and advised immediate hospitalization

The patient's birth and development had followed a normal course He had not been subject to any neurotic traits of childhood such as nail biting, enuresis or tantrums His relationship with his parents and the only other sibling, a sister two years his senior, had been free from significant conflicts The patient graduated from high school in the spring of 1949 His school work was good He displayed mechanical aptness, was rather shy and uncomfortable in a mixed group and preferred hunting and farming to social contacts His major interest was farming He had enrolled in an agricultural institute for the fall of 1949 He spent the summer of 1949 employed as a cadet farmer in upstate New York, where he was working from July 1 until the onset of his present illness

The patient was robust, seldom ill and subject only to an allergic rhinitis, which became more distressing on the farm At the beginning of the summer prophenpyridamine tablets, 25 mg three times a day, were prescribed for his allergic symptoms Over a two month period the patient ingested 200 such tablets until the onset of the presenting illness Although he had been working hard on the farm and had lost a total of 35 pounds (15 9 Kg) in weight during the month of August, he remained apparently well until the last week of that month On Aug 26, 1949, the patient's farm employer called the parents, informed them that their son had become "very nervous" and urged them to take him home as soon as possible The parents were told that the patient had heard that a small forest fire had started somewhere in the vicinity of the farm, that he had set out alone on foot to locate the fire and was found hours later a few miles away, exhausted, nervous and speaking irrationally The patient's mother and sister took him home by car to Westchester County En route his behavior was bizarre At first he insisted on driving at a speed of 20 miles per hour on the open highway because "things were moving too fast and everybody is tired" He stopped the car many times for gasoline although little was needed each time After his mother finally took the wheel of the car and he was relegated to the back seat, he was heard muttering to himself, intermittently singing and sobbing violently During the two days at home prior to his admission to Grasslands Psychiatric Institute the patient's behavior continued bizarre Although he was not mentally confused or disoriented, he was exceedingly irritable, talkative and restless He wandered about rather aimlessly and exhibited great concern over trivial matters in the household

A psychiatric examination disclosed a husky adolescent boy who was obviously lethargic and mentally confused. He had difficulty keeping his head up or his eyes open and slouched in his chair in an awkward position Immediate contact was poor, and the patient struggled to attend to the interview In general, psychomotor activity was much retarded Stream of speech was slowed, irrelevant and circumstantial, he did not reach thought goals, and disturbed thinking was evident For example, when asked what brought him to the hospital, the patient replied "The wind no, not the wind The wind is in Florida It's cold up here Don't worry Take it easy You will be all right" He was not depressed Emotional reactions were obviously inappropriate The patient smiled and laughed quietly out of context No abnormal preoccupations such as delusions or hallucinations were elicited The patient was oriented as to date, place and time Active attention and span of attention were moderately impaired General grasp and recall showed marked impairment, as indicated by the poor performance on the "cowboy story" A significant loss of the capacity for abstract thinking was evident Recent and remote recall were intact, and insight was lacking

Physical examination disclosed a blood pressure of 160 systolic and 108 diastolic and a depressed respiratory rate, varying from 7 to 10 respirations per minute The head and neck were essentially normal The lung fields were clear The heart was normal, as were the abdomen, genitalia and rectum There were no unusual neurologic findings The lethargy, impaired coordination and depressed respirations were believed to be due to central respiratory inhibition Laboratory tests were essentially noncontributory The Wassermann reaction was negative The blood bromide value was normal The spinal fluid pressure in the sitting position was 340 mm of water initially and 270 mm after withdrawal of 10 cc The fluid was clear, with a negative Wassermann reaction, a sugar content of 64 mg per hundred cubic centimeters, chlorides 740 mg, protein 29 mg, a negative reaction to the Pandy test, 3 white blood cells per cubic millimeter and a colloidal gold curve of 0110000000 An electroencephalogram made on September 16 was interpreted as normal

One Rorschach test was administered on September 16, sixteen days after the patient's admission, shortly after symptomatic improvement had begun Since this test could not be completed, only a qualitative evaluation was possible An analysis of the record revealed sequence disturbances and an abundance of pure color and symbolic responses Edging (holding the card up to the eyes in a position parallel to the field of vision) was also apparent The record was grossly abnormal, but, since the inquiry could not be completed, a precise diagnosis was not possible

The patient was retested on September 27, when he was apparently free from clinical symptoms In the second test he made a definite attempt to control emotional impulsivity and the symbolic responses disappeared as did the edging While he was still erratic in his approach, he seemed better able to check his percepts with reality and to organize his response. In neither record did there appear to be any contaminated responses, although his first protocol suggested a tendency to confabulation While the second Rorschach test indicated improvement, the findings remained grossly abnormal in spite

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From the Psychiatric Institute of Grasslands Hospital

[1] Brown, E A A Clinical Evaluation of a New Antihistamine Agent "Trimeton" Conjoint Study of Two Hundred and Twenty Seven Patients, Ann Allergy 6 393 (July Aug) 1948 Schiller, I W and Lowell, F C Trimeton A New Antihistaminic Drug, New England J Med **240** 215 (Feb 10) 1949

of the clinical recovery. However, although this test revealed the presence of gross disturbance in intellectual and emotional functioning, it did not show Rorschach features commonly considered specific for schizophrenia.

For the first seven days of his stay in the hospital the patient was lethargic, slept a great deal, did not mix with other patients and was preoccupied and withdrawn. He appeared somewhat unsteady on his feet; he walked about the ward slowly but preferred to rest on the lounge or his bed in awkward positions. The third day in the hospital he was found sleeping under his bed. The same day he was found sprawled across the table and chair in the dining alcove. His affect was labile and inappropriate. He spoke irrationally to ward personnel. Occasionally he would shake his head and blink his eyes as if trying to clear his head. On the eighth day his symptoms began to disappear. During the next few days he became more lively and alert, friendly, cheerful and sociable and began to help about the ward. He ate and slept well, looked neater, played Ping-pong and cards, went to ward movies and engaged in occupational therapy. He remained well throughout the final four weeks of his hospitalization and was discharged on Oct. 6, 1949.

EXPERIMENTAL FINDINGS

The following experiment was performed: a control electroencephalogram was made on Aug. 29, 1949. On October 13 another electroencephalogram was made, after the patient (then an outpatient) had ingested eight 25 mg. tablets of prophenpyridamine for two and a half days. A third electroencephalogram was taken on October 19, after the patient had ingested eight 4 mg. tablets of chlorprophenpyridamine maleate (chlor-trimeton®) for two and a half days. On the second and third days following the initiation of prophenpyridamine medication the patient felt "drowsy and weak in the knees." No side effects were noted with chlorprophenpyridamine maleate.

The first record interpreted as normal was a low voltage fast type with some low voltage base line sway. During a period of eight seconds when the patient was drowsy, some low normal voltage 5 to 7 per second waves appeared. Hyperventilation caused the appearance of 4 to 7 per second waves in the last ninety seconds. The second record after prophenpyridamine medication was the same as that for the control except that hyperventilation produced normal voltage 5 to 7 per second waves about one minute earlier. The third record following chlorprophenpyridamine maleate medication was clearly abnormal. There were significant quantities of low normal voltage 5 to 7 per second waves in all regions, with several 5 to 20 second runs of 7 per second activity. The record in general, contained much low voltage fast activity. Hyperventilation produced a significant increase in normal voltage 5 to 7 per second waves after thirty to forty five seconds. In the third minute there was a moderately large build up of high voltage 3 per second waves. Return to resting patterns was moderately prolonged requiring more than two minutes.

CONCLUSIONS

The onset of the psychosis following prolonged medication with prophenpyridamine (trimeton®) the absence of other known precipitating factors, the nature of the illness itself and the prompt recovery on withdrawal of medication leave no doubt that this is a case of true toxic psychosis due to this drug. In view of the previously known central toxic effects of this and similar drugs it is not surprising that a toxic psychosis developed in a patient as a result of his taking antihistaminics. It can be predicted safely that with the increasing indiscriminate use of antihistaminics similar cases will appear and be recognized.

The experimental results reported in this paper are inconclusive. However, the fact that therapeutic doses of chlorprophenpyridamine maleate produced significant electroencephalographic changes within three days is considered worthy of reporting as a lead for further investigation.

CURETTEMENT TECHNIC FOR BIOPSY

Use in the Detection of Cutaneous Cancer

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As a rapid and easy method of obtaining tissue when basal or squamous cell carcinoma of the skin is suspected, we have been impressed with the efficacy of the simple curettement. For over three years we have employed a curetting technic for biopsies of cutaneous lesions suspected of being basal or squamous cell carcinoma. Although any small, sharp curet can be used, we have found the straight, sharp Buck type of ear curet, size 2, to be the most suitable. The curetting ring of this instrument has a diameter of 3.5 mm. which allows one to obtain sufficient tissue yet is small enough to scoop into even the tiniest lesion. Smaller curets are less satisfactory because the amount of tissue obtained is frequently insufficient. Larger curets can be used when the tissue is bulky and proliferative but do not lend themselves so well to penetration of the smaller lesions.

The curettement is performed by simply applying the cutting edge to the lesion and, with a scooping motion, quickly digging out a small clump of tissue, which usually remains within the ring of the curet. One removes this by immersing and shaking the curet in the fixative solution. The specimen thus obtained can be sent to the laboratory. Usually no anesthetic is required. The pain experienced, if any, is no worse than that experienced in the injection of an anesthetic.

This technic can be applied to practically all erosions or ulcers and to most nodular lesions. The more friable the tissue, the more easily it lends itself to curettement. The method cannot be used on intact skin or in cases in which the skin overlying a lesion is intact and of normal thickness. The cutting edge of the curet is not sharp enough, nor is the curet as a whole strong enough, for such a purpose.

The material from the curet, which has been shaken into 10 per cent formaldehyde solution usually consists of several small fragments of tissue, with the maximum size of the individual pieces usually under 2 mm. in diameter. These pieces are placed in the center of a piece of gauze 4 by 4.5 cm. The open ends of the gauze are placed together and twisted to form a small bag. A fine thread may be twisted around the end as an extra precaution to avoid spilling the contents.

The biopsy specimen is processed by any standard paraffin technic, and the tissues stand out on the gauze, after being removed from the paraffin bath, as white, solid fragments which can readily be picked off with small, heated forceps and embedded in paraffin block for sectioning. The sections are cut at 7 microns and stained with hematoxylin and eosin. While the amount of tumor tissue on the prepared slides is small, the structure and arrangement of the cells in the tiny plugs can be easily seen microscopically.

We have thus far made well over a thousand biopsies with this method in cases in which carcinoma of the skin has been suspected. In 90 per cent of these instances the amount of tissue secured was sufficient for histologic diagnoses. In the 10 per cent in which insufficient tissue was secured the biopsy was repeated with some other method. The curetting in no way interferes with any subsequent method of biopsy. In contrast to some other technics this procedure does not cause cosmetically objectionable mutilations, nor does it interfere with subsequent therapy by distorting the anatomic relationships of the involved site.

Although this technic can be used in the more proliferative lip lesions we do not routinely employ it for the diagnosis of early

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From the Department of Dermatology and Pathology, Roswell Park Memorial Institute.

lip cancer, which usually is not particularly friable The material obtained by curettement of this latter type of lesion is likely to consist merely of fine shreds which are not suitable for diagnosis We do not recommend this method of biopsy when malignant melanoma is suspected

SALMONELLA ORANIENBURG IN A PERIRECTAL ABSCESS

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and
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Pearl River, N Y

Salmonellae are but rarely found in abscesses or other localized purulent infections In the files of the Salmonella Center at Beth Israel Hospital, New York, which covers over 5,000 cases of human salmonella infections and carriers, there are only 44 cases in which abscess formation or localized infections of the integument dominated the clinical picture[1] Similarly, Edwards, Bruner and Moran in their statistics on 2,949 isolations of salmonellae from man, listed but 18 abscesses[2]

From the purely clinical point of view, salmonellae in localized infections present no problems as distinguished from those of similar infections of different causation They could be considered bacteriologic oddities were it not for the infective nature of these organisms In contrast to the common agents of purulent infection, salmonellae are infective by the oral route Thus pus and drainage from a salmonella abscess present a definite risk to members of the medical and nursing staffs and to other persons in contact with the patient Particularly, there exists the possibility of introducing a most undesirable enteric infection into a surgical ward, a risk comparable to that incurred by an unrecognized case of diarrhea due to salmonella or shigella organisms or a carrier of these organisms Recent experience[3] has shown the tenaciousness with which salmonella infections may cling to a ward (For the mechanisms of salmonella infection, see data and references in articles by previously cited authors,[4] also Weil[5] and Bornstein[6])

The necessary precautionary measures against such accidents obviously can be taken only if prompt etiologic diagnosis is made by appropriate bacteriologic methods The following case emphasizes the need of paying attention to the causative agents of relatively trivial infections from the point of view of their infective potentialities

REPORT OF CASE

History—J D, a white man aged 34, was admitted to the Bronx Hospital Oct 17, 1949 with rectal pain and the sensation of a mass near the anus for five days He had been completely well until two weeks prior to admission, when mild abdominal cramps and some nonbloody diarrhea developed after he had a meal consisting of vegetables and bread at a popular cafeteria in midtown New York He remained on a diet of vegetables and bread, having lunch at this same cafeteria on the following two days On the third day the diarrhea disappeared spontaneously Five days prior to admission, the patient consulted his physician because of rectal pain and the sensation of a mass He was treated with injections of penicillin and sitz baths but obtained no relief His past history was non contributory

Physical Examination—On admission the patient, a well developed man was not visibly ill The temperature was 100 F rectally, the pulse rate 72 and the respiratory rate 20 per minute The blood pressure was 130 systolic and 90 diastolic Aside from a well healed scar from a McBurney incision, the only positive observation was a fluctuant perirectal mass about 1 cm in diameter There was no redness nor signs of inflammation about this mass It was extremely painful to palpation, but rectal examination beyond the bulge into the rectal canal revealed normal conditions and was not painful The red blood cell count was 4,500,000, the hemoglobin was 92 per cent (13 3 Gm), and the white cell blood count was 6,000 with a normal differential count The urine was normal

Operation—On the morning following the patient's admission, operative intervention was performed The abscess was located just beyond the mucocutaneous line, on the skin side, at about 11 o'clock After adequate preparation of the skin, the abscess was aspirated and about 4 cc of purulent fluid obtained The abscess was then opened by a radial incision An attempt was made to find an internal opening through the rectal mucosa, but a definite opening was not found Nevertheless, the mucosa of the rectum was incised in the line of the original incision to a point just beyond the limits of the abscess cavity The base of the cavity was curetted, and the wound was packed with iodoform-treated gauze Culture from the pus yielded Escherichia coli, a nonhemolytic Streptococcus fecalis and Salmonella oranienburg

Postoperative Course—The patient had a normal postoperative course Two weeks after the operation the wound was entirely healed His bowels moved regularly, once a day As soon as the laboratory report had been received, the patient was isolated The appropriateness of this measure was illustrated by the finding of S oranienburg in the first postoperative stool However, culture from the feces of the following day did not reveal the organism, nor did subsequent cultures during the next two weeks

COMMENT

It is likely that the intestinal upset reported by the patient nine days prior to the appearance of the abscess marks the time of first contact of the patient with salmonella It cannot be stated whether the perirectal tissue was infected via the blood stream or by contiguity, although the presence of two other enteric organisms may suggest the latter route The stool examination showed that the patient did harbor salmonellae in his intestinal tract immediately after surgical intervention, although there were no symptoms of enteritis[7] Subsequent examinations of the feces gave no indication that the patient had become a carrier

As to the salmonella type found in this case, it is perhaps of some interest to note that among 44 cases on file in the Salmonella Center at Beth Israel Hospital, 23 are members of group C_1, 13 of which are Cholerae suis and 4 S oranienburg[1b] Percentagewise, this is much more than the share of group C_1 organisms and of these types in isolations from other sources

SUMMARY

1 A case of perirectal abscess is reported in which Salmonella oranienburg was identified in the pus, together with Escherichia coli and Streptococcus fecalis

2 Though salmonellae are seldom found in abscesses (less than 1 per cent of all salmonella isolations), they are of practical interest because they are a source of infection for the surrounding contacts which is the more easily overlooked because the infection itself presents no distinguishing features

900 Grand Concourse

From the Departments of Surgery and Bacteriology Bronx Hospital New York

[1] Seligmann E Saphra I, and Wassermann M Salmonella Infections in Man, Am J Hyg **38** 226 1943 Salmonella Infections in the United States, J Immunol **54** 69 1946 Saphra I Personal communication to the authors

[2] Edwards, P R, Bruner D W, and Moran A B Further Studies on the Occurrence and Distribution of Salmonella Types in the United States J Infect Dis **83** 220 1948

[3] Mushin R An Outbreak of Salmonella Enteritis Due to Salmonella Derby J Hyg **46** 151, 1948 Rubbo S D Cross Infection in Hospitals Due to Salmonella Derby ibid **46** 158 1948

[4] Footnotes 1a, 2 and 3

[5] Weil A J Medical and Epidemiological Aspects of Enteric Infections Ann Rev Microbiol **1** 309 1947

[6] Bornstein S The State of the Salmonella Problem, J Immunol **46** 439, 1943

[7] It is possible that incision of the mucosal surface of the abscess may have contaminated the lower part of the intestine

SINGLE USE, FILLED HYPODERMIC SYRINGE FOR INDUCING SKIN ANESTHESIA FOR VENESECTION IN BLOOD BANK WORK

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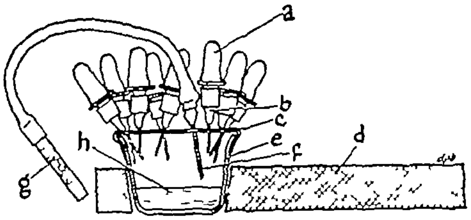
HENRY NAFTULIN B S
and
MARTIN FREUNDLICH M D
Chicago

There is at present no fully dependable method of eliminating the hazard of transmitting hepatitis in whole blood transfusion work, and every possible precaution should be taken to minimize the risk. Thus, modern blood banks use individual syringes and hypodermic needles to anesthetize the donor's skin preliminary to venesection lest a chance hepatitis virus from one donor be transferred to another Considerable labor and expense is encountered, at least by the larger blood banks in the preparation of large numbers of syringes

The small filled hypodermic syringe (and assembly) in the accompanying illustration has been in use at the Samuel Deutsch Serum Center for some time It has been found easy to use, effective and safe. The hypodermic syringe itself consists of a small orifice rubber bulb (*a*) which fits snugly over the hub of an ordinary hypodermic needle (*b*), in use the filled syringe is withdrawn from the rubber dam (*c*), the needle is inserted into the donor s sterilized skin and the anesthetic in the bulb driven into the skin by compressing the bulb between the fingers After one time use, the point of the hypodermic syringe is thrust into the thick sponge rubber pad (*d*), where it is automatically designated by position as having been used, and the delicate tip of the needle is simultaneously protected



Multiple filled hypodermic syringe assembly

The size of the assembly depends on local needs We use from twenty five to thirty hypodermic syringes mounted in a rubber dam (*c*) The longer needle (*f*) provides for air exchange through a short length of rubber tubing and glass-wool air filter (*g*) The rubber pad (*d*) is clean but not autoclaved All other parts are assembled as indicated in the diagram The assembly is then turned upside down, care being taken that the point of the needle (*f*) extends beyond the anesthetic (*h*) in the inverted position During autoclaving the air in bulbs (*a*) is largely expelled it is replaced during cooling by the anesthetic Once the assembly has cooled, it is reinverted to the upright position shown The cooled sterile assembly may then be fitted if desired, into a hole cut into the sponge rubber pad (*d*) and is ready for use Repeated sterility tests of unused filled hypodermic syringes and of the surplus anesthetic several days after complete use of an assembly have shown no contamination We use the rubber dam (*c*) only once

The anesthetic employed is not the customary procaine, which presents problems in autoclaving particularly if it is in contact with metal during heating We employ chemically pure benzyl alcohol 2 per cent and sodium chloride 0 9 per cent in distilled water This chemical should, of course be as pure as possible. In our experience it has been satisfactory as an anesthetic, dependable and safe It is emphasized that our experience is restricted to the small amounts required for induction of anesthesia in the skin of blood donors

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From the Samuel Deutsch Serum Center Michael Reese Research Foundation

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RUPTURE OF THE RECTUS ABDOMINIS MUSCLE FOLLOWING ELECTROSHOCK THERAPY

NATHAN SAVITSKY M D
and
WILLIAM KARLINER M D
New York

The literature available to us has failed to disclose a case of hematoma of the rectus abdominis muscle appearing shortly after electroshock therapy

REPORT OF CASE

A white woman aged 51 had had a schizophrenic-like syndrome for more than ten years and had been institutionalized several times during this period A number of courses of electroshock therapy were given with improvement following each series The remissions varied from a few months to two years

Past history included arterial hypertension (blood pressure up to 230 systolic and 124 diastolic), a right nephrectomy in 1939 for nephrolithiasis with infection, a severe attack of polyarthritis in 1923 and influenza in 1918 No family history of nervous or mental disease was obtained

On Feb 20, 1948, five hours after an ambulatory electroshock treatment with a typical grand mal response of about one minute s duration the patient complained of severe abdominal pain in the right lower quadrant. The abdominal tenderness and rigidity, as well as a leukocyte count of 16,000 with a shift to the left, suggested a diagnosis of acute appendicitis At operation the right rectus muscle was found torn near its inferior end and there was about a pint of blood in the preperitoneal area After careful control of bleeding points the wound was closed, and the patient made a rapid and uneventful recovery Three weeks after the operation the patient s paranoid trends again became pronounced Curare was then given prior to each electroshock treatment Since then the patient has been treated intermittently during exacerbations of psychotic behavior without ill effects

COMMENT

Although the electroshock treatment and the hematoma of the abdominal wall may be coincidental, the probable role of the severe contraction of the abdominal muscles during the electrically induced seizure cannot be ignored. The absence of more frequent incidents of this type, considering the widespread use of this therapeutic regimen indicates the probable existence of other factors which predispose to this complication Influenza was mentioned by Teske[1] as playing a probable accessory etiologic role, perhaps by a direct effect on the muscle Tears of other muscles during the course of electroshock therapy are apparently rare Careful search of the already extensive electroshock literature revealed mention of such tears by Kalinowsky (supraspinatus tendon[2]), Pacella (deltoid muscle[3] and trapezius muscle[4]) and by Geller (back muscles[5]) Anatomic verification of these lesions is not reported by any of the aforementioned investigators

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1 Teske J M Hematoma of the Rectus Abdominis Muscle Report of a Case and Analysis of One Hundred Cases from the Literature Am J Surg **71** 689 1946

2 Kalinowsky L B and Hoch P H Shock Treatments and Other Somatic Procedures in Psychiatry New York, Grune & Stratton Inc 1946

3 Pacella B L Sequelae and Complications of Convulsive Shock Therapy Bull New York Acad Med **20** 575 1944

4 Pacella B L Personal communication to the authors.

5 Geller W Unerwunschte Nebenerscheinungen bei der Elektrokrampfbehandlung Deut che med Wchnschr **74** 75 1949

Upholding the Honor of the Profession.—A physician is expected to uphold the dignity and honor *of his vocation.*—Section I Chapter III of the Principles of Medical Ethics of the American Medical Association

Council on Foods and Nutrition

This paper was prepared at the request of the Council and is one of a series appearing in The Journal *In the near future the entire series will appear in book form as the Council's Handbook of Nutrition* James R Wilson, M D, *Secretary*

FLUID THERAPY

Relation to Tissue Composition and the Expenditure of Water and Electrolyte

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(*Concluded from page 373*)

Under normal conditions, without sweating, about two thirds of the insensible water loss occurs by diffusion through the skin The rate of water loss from the respiratory tract depends on the volume of respiratory exchange and the content of water of the inhaled and exhaled air These are in turn dependent on the temperature and humidity of the environmental air, since the exhaled air is about 88 per cent saturated with water at 33 C When there is hyperpnea, the magnitude of the water losses through the lungs is difficult to measure but probably reaches values five times as great as the normal rate[65] In estimating the importance of the losses from the lungs, it should be remembered that an increase in the loss of water from the lungs may be partially compensated by a decrease in the activity of the sweat glands Water loss from the lungs is not accompanied by loss of electrolyte

The insensible loss of water from the skin is dependent chiefly on a gradient for diffusion through the skin This is dependent chiefly on skin temperature if the surface is dry A small amount of electrolyte is lost from the skin when there is no sweat, presumably through desquamation, though there may be minimal activity of sweat glands as well Losses of water in sweat are discussed in the excellent book by Adolph and associates[66] In the thermal balance of the body, the skin acts like a black body with a temperature of about 33 3 C (92 F) The body gains heat from the environment and objects above this temperature and loses heat to objects and environment below this temperature At an environmental temperature of about 26 7 C (80 F), body temperature is maintained without sweating and without more heat production than that characteristic of rest At a given temperature, the radiant energy of direct sunshine may add as much as 50 per cent to the heat balance when only indirect energy from the sky is acting on the body The volume of sweat is normally produced in amounts sufficient to maintain the body temperature when the metabolic production of the heat and the positive heat balance from the environment are greater than the losses produced by evaporation of the insensible water and by the heat losses through radiation, conduction and convection The efficiency of the evaporation of sweat is not seriously impaired until humidity is greater than 80 per cent Air currents accelerate the rate of evaporation and the exchange of heat with the environment

The volume of sweat may reach 2 5 liters an hour in men at hard work at a high environmental temperature A few measurements on normal infants kept practically nude showed that raising the environmental temperature from 26 6 to 33 3 C (80 to 90 F) increased the loss of water from the lungs and skin from 48 to 108 ml per kilogram per day Presumably, at least as much as 60 ml of sweat per kilogram per day was produced at the higher temperature Adults sitting in the shade at similar temperatures showed comparable sweating per unit of heat production[66] The calculated losses of sweat in infants with diarrhea, studied in hot weather in August in Galveston, Texas, and Dallas, Texas, averaged 70 ml per kilogram per day[88]

When the environmental temperature is higher than 33 3 C (92 F) all the loss of heat is accounted for by evaporation of water, and light clothing diminishes the amount of sweat by prevention of the loss of drops of sweat from the body surface and decrease of the addition of heat from the environment At lower temperatures, clothing sometimes increases the volume of sweat by decreasing the loss of heat by radiation and convection Mere observation of the skin is inadequate to detect the onset of sweating or to estimate its amount For a lightly clothed person at a room temperature of 85 to 90 F an allowance for the loss of 50 ml of sweat for each 100 calories metabolized is apparently indicated Since operating rooms are likely to be quite warm, water loss in sweat may be considerable during operative procedures Air conditioning and avoidance of overheating are, therefore, important therapeutic measures, particularly for patients with disturbance in the metabolism of water and electrolyte

The quantity of electrolyte in sweat has been found to be so variable that any prediction of the composition of sweat is difficult and unreliable For clinical purposes, the concentration of sodium and chloride may be assumed to be 25 to 50 millimoles per liter and that of potassium, 15 millimoles These values may be somewhat high for normal, acclimated persons Actually, analyses of sweat indicate that the concentration of sodium and chloride may vary from 5 to 100 millimoles per liter There is evidence that acclimatization to hot weather is accompanied by a tendency to excrete a less concentrated sweat[67] Recent work indicates that the concentrations of sodium, potassium and chloride in sweat are influenced by the adrenocortical hormones Conn has shown that patients with adrenal insufficiency have high concentrations of sodium and chloride and low concentrations of potassium in the sweat induced by heat In contrast, patients with adrenocortical tumors or patients receiving pituitary adrenocorticotrophic hormones or desoxycorticosterone acetate have concentrations of sodium and chloride that are lower than normal and concentrations of potassium that are higher than normal[68]

Abnormal urinary losses of water and electrolyte occur when there are abnormal loads or disturbances in renal function Abnormally large renal loads are produced by ketosis and glycosuria Diets high in protein or electrolyte increase the urine volume Fifty grams of dextrose or 9 Gm of sodium chloride require about 250 ml of water for excretion in urine which is maximally concentrated When renal disease produces a urine of fixed specific gravity, the water for urine formation is limited to the volumes which will contain the substances to be excreted at the fixed specific gravity (usually at a specific gravity of 1 010 to 1 012) As is shown in figure 4 (part 1, page 373), the solids

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Because of lack of space this article has been abbreviated in The Journal by omission of the footnotes This complete article will appear in the reprints, which may be requested from the authors produced in the metabolization of 100 calories will require about 85 ml. of water if the specific gravity of the urine is 1.012. A total water intake of about 150 ml. per 100 calories metabolized is required for urine of this specific gravity. This amounts to about 4 liters in an active adult.

Electrolyte disturbances are likely to develop in patients with chronic nephritis because the kidneys not only are unable to conserve water but also waste sodium chloride[43] and, in some cases, potassium.[25] Severe diminution of the rate of glomerular filtration is also accompanied by inability to excrete adequately sulfate, phosphates and other acids. Administration of sodium chloride may overcome the losses of sodium chloride but probably aggravates the tendency to excrete potassium. Furthermore, renal insufficiency often is accompanied by inability to form an acid urine and to excrete ammonium in order to save sodium and potassium.[48] The retention of phosphate and other acids and the wastage of sodium and perhaps potassium produces metabolic acidosis. The diagnosis of potassium deficiency has been established in a few patients with nephritis, in whom paralysis accompanied by low concentration of potassium in serum developed. The paralysis and weakness were relieved by administration of potassium salts.[25] On the other hand, oliguria and anuria may lead to retention of potassium and a rise in the serum concentrations to levels producing heart block.[59]

During convalescence from anuria and in some types of nephritis[60] large volumes of urine may be formed which contain little sodium and chloride. In these patients, the usual intake of salt may be sufficient to lead to high serum concentrations of these ions. A similar reaction occurs in certain infants as a result of a congenital anomaly in tubular function causing obligatory polyuria.[61] The polyuria of diabetes insipidus, on the other hand, is not often accompanied by electrolyte disturbances because the tubules function normally in preserving electrolyte concentrations of the serum. The tubules reabsorb sodium chloride when the intake of water is high and the intake of salt is low and fail to reabsorb sodium chloride if the intake of salt is high. Patients with diabetes insipidus merely have difficulty in drinking enough water to replace the excessive losses in the urine.[62]

Adrenal insufficiency leads to deficits of sodium and chloride because of the inability of the kidneys to conserve these ions.[63] Accompanying this loss, there is a tendency toward retention of potassium, especially when circulatory failure develops.[64] Renal function may be restored, though inadequately, by administration of sodium chloride.[63] Desoxycorticosterone acetate not only enables the kidneys to reabsorb sodium and chloride from the glomerular filtrate but also increases the rate of excretion of potassium.[65] This may lead to deficit of potassium, particularly if large amounts of sodium chloride are given.[66] The deficits of potassium may lead to low concentration of chloride and potassium in the serum and to high concentration of serum bicarbonate and serum sodium when renal adjustment to deficit of potassium is attained in the presence of abundant sodium chloride (fig. 2). Certain adrenocortical tumors have a similar effect.[15] The deficiency of potassium, especially when large amounts of sodium chloride are given, probably explains some of the instances of cardiac failure noted in patients receiving desoxycorticosterone acetate. Paralysis due to deficiency of potassium has been noted in animals receiving desoxycorticosterone acetate.[66a]

During peripheral circulatory failure (shock), there are disturbances in renal function. The rate of glomerular filtration decreases, and the concentration of nonprotein nitrogen rises.[67] Alteration in renal circulation during shock seriously interferes with renal regulation of electrolyte concentrations.[7b] Furthermore, accompanying local changes in the tissues, potassium leaves the cells and is replaced by somewhat less than equivalent amounts of sodium. This produces metabolic acidosis and leads to high concentration of potassium in the serum.[28] As long as urine is excreted, a high serum potassium leads to urinary excretion of this ion. Loss of potassium in the urine in diarrhea and diabetic acidosis is, in part, explained by this type of reaction.[58] Further study will probably show that disturbances in renal function explain other changes in body water and electrolyte that develop in shock.

Abnormal losses of water and electrolyte from the gastrointestinal tract occur as a result of vomiting, diarrhea, escape of gastrointestinal fluids through fistulas and aspiration from catheters introduced into the stomach and upper intestines. The approximate losses may be estimated from the volumes and composition of the fluids lost. Figure 5 shows the average concentrations of certain gastrointestinal fluids. The volumes may be measured but usually can only be estimated approximately. The losses determine the tissue deficits.

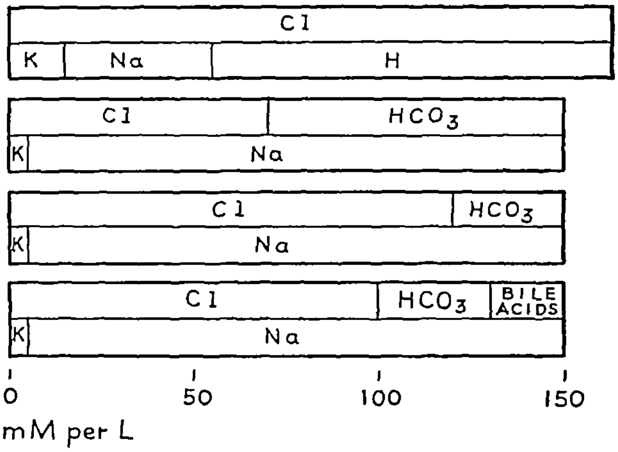


Fig. 5.—Diagrammatic representation of the concentrations of gastrointestinal secretions. From the top down: gastric, pancreatic, small intestinal and hepatic bile.

As the chart shows, the gastric juice contains relatively more chloride than sodium and appreciable amounts of potassium. As excreted by the chief cells, the chloride concentration is somewhat higher than the concentration of sodium in serum.[68] The gastric contents are the result of the mixture of the acid excretion of the chief cells with neutral or slightly alkaline secretions of other cells. The amounts of each kind of secretion are so variable that gastric contents may contain considerably more chloride than sodium or more sodium than chloride. Loss of acid gastric juice leaves the body with a relative excess of sodium available to form bicarbonate in extracellular fluids. This type of alkalosis is typical of pyloric obstruction.[69] In the vomiting of renal failure and as a result of certain infections, the fluid is not acid and may produce no change in acid-base equilibrium or even acidosis. In certain cases of vomiting in children typified by periodic vomiting, acidosis results not only because the fluid lost is not highly acid but because starvation leads to nondiabetic ketosis.[70] High intestinal obstruction and the loss of fluids through catheters introduced into the upper intestinal tract after operative procedures produce alkalosis because the amount of gastric fluid removed is greater than the amount of the intestinal juices.[70a]

The stools in diarrhea vary widely in composition. In some patients the electrolyte concentrations are so small that little decrease in body electrolyte develops, despite the loss of large volumes of water in the stools. In other patients the stools contain so much water and electrolyte that the tissues are rapidly depleted of both water and electrolyte. The concentrations per kilogram of stools vary from 12 to 90 millimoles for sodium, from 10 to 110 millimoles for chloride and from 10 to 80 millimoles for potassium.[38] The daily losses in severe infantile diarrhea are about 250 Gm. of water, 16 millimoles of sodium, 11 millimoles of chloride and 8 millimoles of potassium per day. In adults, cholera, severe diarrhea and dysentery probably lead to proportional losses. Sprue and celiac disease do not produce as severe losses of electrolyte except during periods of exacerbation. Practically all types of diarrhea tend to produce greater relative losses of sodium and potassium than of chloride. The result is a type of metabolic acidosis in which changes in the composition of intracellular fluids play an important role which has already been discussed.

Gamble and associates[71] and Darrow[72] described a rare type of congenital anomaly of intestinal absorption leading to obligatory watery stools containing more chloride than sodium. The patients had continual metabolic alkalosis and deficits of both chloride and potassium. Recent experiments indicate that diarrhea in which the stools contain more chloride than sodium develops in rats subjected to potassium deficiency.[73] Albright and Gardner have seen a similar development in an adult, which suggests that a change in intestinal absorption leading to stools containing more chloride than sodium may result when pronounced deficit of potassium develops.[74]

In the discussion of the balance of water and electrolyte, it is necessary to point out that balances of water and electrolyte within the body affect the amount of water and electrolyte available for expenditure. If there is an increase in extracellular fluids owing to formation of edema or exudates, sufficient sodium and chloride must be retained to preserve the composition of extracellular fluids. When such fluids are excreted, a corresponding amount of sodium and chloride is released in order to preserve extracellular concentration. These facts must be borne in mind in estimating the requirement of water and electrolyte. There is such a small amount of water and electrolyte in the body that can safely be used for obligatory expenditure that small losses lead to symptoms of dehydration. The dangers of dehydration have been sufficiently emphasized so that physicians do not knowingly call on body reserves to meet obligatory expenditure. It is not so generally realized that expansion of body fluids may leave the rest of the body with insufficient water and electrolyte to cover obligatory expenditure and to provide adequate quantities of water and electrolyte for the renal and circulatory systems. Burns, exposure to cold, extensive trauma, inflammatory reactions and tourniquet injury[75] produce extensive expansions of fluids at the site of injury. The fluid accumulated resembles extracellular fluids, and the localization of water and electrolyte has the same effect as loss of extracellular water and electrolyte.[32]

Accompanying the circulatory changes of tissue injury, potassium may be lost from the cells and replaced by sodium.[28] The decrease in extracellular sodium produces acidosis, which is further aggravated by changes in renal function dependent on the lack of water and electrolyte available for renal and circulatory functions. Part of the benefit of sodium chloride therapy in shock is dependent on the changes in the cells and the obligatory expansion of extracellular fluids that is taking place.

IV. CLINICAL AND ELECTROCARDIOGRAPHIC DISTURBANCES ACCOMPANYING HYPOKALIEMIA

Certain symptoms and signs and electrocardiographic changes are known to be accompanied by low concentrations of potassium in serum and to be abolished by the restoration of the normal concentration. The following signs and symptoms have been observed: (1) weakness and hypotonia of the skeletal muscles progressing to frank paralysis (usually the paralysis of the arms and legs appears first and that of the respiratory muscles later), (2) dyspnea with gasping respirations in which the accessory muscles of respiration are invoked, (3) cyanosis which is chiefly respiratory in origin but may be in part cardiac, (4) abdominal distention which seems to be dependent on atonia of the smooth muscles (in experimental animals extreme deficiency of potassium produces paralytic ileus), (5) nausea and vomiting, (6) cardiac enlargement with the appearance of systolic murmurs, (7) increased pulse pressure with Corrigan pulse, and (8) elevated venous pressure and signs of cardiac failure. The paralysis of the diaphragm and abdominal muscles and the functional disturbances of the myocardium account for the major clinical signs and symptoms.[76]

The electrocardiographic changes have received considerable study.[76a, b] While the changes are not absolutely specific, their reversal accompanying restoration of the concentration of potassium in serum indicates that they are related to serum potassium concentration. The changes which have been attributed to abnormal serum potassium are illustrated diagrammatically in figure 6. The following changes accompanying low concentrations of potassium in serum should be noticed: (1) slightly prolonged Q-T interval, (2) decreased height and inversion of the T waves, (3) rounded and prolonged T waves, (4) depression of the S-T segment and (5) possible inversion of the P waves, extrasystoles and auriculoventricular block. The precordial lead CR_4 has been found the most useful in measuring the Q-T interval. The height of the T waves has been found to be influenced by the p_H, by the partial pressure of carbon dioxide and by the concentration of potassium in serum. The electrocardiographic changes correlate only approximately with the decrease in concentration of potassium in serum.

Physiologically significant decrease in the concentration of potassium in serum may occur without characteristic signs or symptoms. Since it is not known how often or under what circumstances low concentrations of potassium in serum lead to anatomic lesions of the heart nor when serious symptoms may develop, decrease in the concentration of potassium in serum should be suspected in those conditions known frequently to be accompanied by deficiency of potassium or decrease in serum potassium concentration or both. Flame photometry has made the measurement of serum potassium a practical clinical examination. The finding of a low concentration of potassium in the serum confirms the diagnosis of low serum potassium, but low serum potassium does not develop in all forms of deficiency of potassium in the body as a whole Consideration of the contribution of hypokaliemia and potassium deficiency to the symptoms is especially important, since patients likely to have disturbances in body potassium usually have other disorders which may mistakenly be considered adequately to explain the signs and symptoms The treatment of this condition consists in the oral or parenteral administration of potassium salts

V CLINICAL AND ELECTROCARDIOGRAPHIC DISTURBANCES ACCOMPANYING HYPERKALIEMIA

Certain signs and symptoms and electrocardiographic changes develop when the serum potassium concentration is elevated and are reversed if the serum potassium returns to normal The following signs and symptoms have been observed in hyperkaliemia (1) listlessness and mental confusion, (2) numbness and tingling of the extremities with a sense of weakness and heaviness of the legs, (3) cold, gray pallor, (4) bradycardia and occasionally totally irregular rhythm, (5) peripheral vascular collapse with diminished quality of the heart sounds and low blood pressure, (6) in a few patients with uremia, a rapidly ascending flaccid paralysis without involvement of the trunk, head or bladder, and (7) cardiac arrest

The electrocardiographic abnormalities correspond roughly to the degree of elevation of serum potassium concentration The changes are illustrated diagrammatically in figure 6 At concentrations of 6 5 to 7 8 millimoles of potassium per liter, alterations in the T wave begin to appear These alterations are almost always present when the potassium level is above 8 millimoles per liter Heart block appears above about 10 millimoles per liter The sequence of changes with increasing concentrations of serum potassium is (1) appearance of peaked T waves, (2) increased duration of QRS complex, (3) increased duration of the P-R interval leading to auricular standstill, (4) biphasic curve with progressive delay in ventricular conduction, and (5) total arrhythmia progressing to cardiac arrest[77]

Hyperkaliemia arises almost exclusively when renal excretion is greatly diminished because of renal disease or oliguria accompanying shock and dehydration The increase in extracellular potassium may come from food or potassium-containing salts administered either orally or parenterally The increase may also arise from the release of potassium from the cells caused by the catabolism of cellular structures or the release of cellular potassium which accompanies anoxia or other disturbances in cellular metabolism It is difficult, if not impossible to produce potassium intoxication by the oral administration of potassium salts to patients with normal kidneys and circulation However, too rapid parenteral administration of potassium salts may produce hyperkaliemia though the occurrence of serious symptoms has never been noted in our rather extensive experience or in that of others using similar methods of parenteral administration of potassium

In almost all the reported cases of hyperkaliemia, the concentrations of sodium in serum have been low Some of the symptoms and electrocardiographic changes may be related to the abnormal ratio of potassium to sodium The low concentration of serum sodium certainly contributes to the circulatory and renal failure in many instances

The treatment consists of stopping the intake of potassium retarding the rate of release of potassium from the cells, promoting the return of extracellular potassium to the cells and increasing the excretion of potassium by the kidneys Intravenously administered dextrose will retard the catabolism of protein, which leads to release of potassium from the cells in the fasting patient It also promotes the taking up of potassium from the extracellular fluids by the formation of glycogen and perhaps by restoring certain cellular functions Hypertonic sodium chloride solution is indicated, particularly when the serum is hypotonic since it will improve the circulation and the renal function The intravenous injection of calcium salts seems to be indicated on physiologic grounds but has been found to be of only transient benefit

VI THERAPEUTIC APPLICATIONS

Fluid therapy should be based as far as possible on an estimation of the changes in tissue composition and the rate of expenditure of water and electrolyte In addition to evidence of dehydration or edema obtained from the physical examination, the direction of the change in body water may be obtained from the body weight Evaluation of the acid-base equilibrium requires the determination of serum bicarbonate and p_H, which should always be evaluated in relation to the respiratory rate and depth in order to estimate the efficiency of the exchange of gases in the lungs The serum concentrations of bicarbonate plus chloride, or, more reliably, the concentration of sodium shows whether fluids are hypotonic or hypertonic The concentration of potassium is valuable but alone does not determine the existence of potassium deficiency When the therapy is followed from day to day, the body weight is the most reliable evidence of change in body water and should be determined accurately in adults as well as infants Measurement of the volume of urine and other excreta is often necessary in making the decision as to the kinds and amounts of fluid to be administered Restoration of the circulation in shock is essential Since shock cannot be recognized with certainty by clinical observations, treatment with transfusion of blood or infusion of plasma should be given to many patients with disturbances of water and electrolyte who might recover without these therapeutic measures

The following general principles are used in planning therapy (1) treatment of shock by infusion of solutions replacing the deficit of electrolyte and blood transfusions or infusions of plasma or human plasma albumin, (2) replacement of deficit of electrolyte with solutions which provide for the restoration of sodium, potassium, chloride and phosphate, as indicated by the estimated deficiencies, (3) provision of water and electrolyte to cover the expenditure as calculated from the metabolic rate and abnormal losses, (4) appropriate therapy to overcome abnormal metabolic reactions, as in diabetes, adrenal insufficiency, renal failure and diarrhea and (5) avoidance of disturbances produced by the solutions used According to the chief purpose for which they are appropriate, the various solutions may be grouped in four categories (1) provision of water, (2) replacement of electrolytes (3) maintenance of nutrition and (4) prevention and treatment of shock

FLUIDS APPROPRIATE FOR FURNISHING WATER

Parenteral water is most effectively given by the intravenous injection of a 5 or 10 per cent solution of dextrose in water Although 5 per cent dextrose is frequently given by hypodermoclysis this practice is seldom desirable since 5 per cent dextrose is irritating locally and immobilizes water and electrolyte for a period of seven or more hours [82] The immobilization of water and electrolyte can produce all the signs and symptoms of dehydration One part of isotonic sodium chloride solution added to one or two parts 5 per cent dextrose has few of these objections The rate of intravenous injection should not be greater than the body can handle The slow injection of 5 to 10 per cent dextrose in amounts which cover water expenditure does not give more dextrose than can be metabolized One hundred cubic centimeters of 5 per cent dextrose per 100 calories metabolized supplies sufficient dextrose to produce maximal protein sparing and to eliminate ketosis and achieve the conservation of extracellular fluid due to dextrose [52a] Ten per cent is as high a concentration as is well tolerated by the veins over long periods Dextrose solutions should be made up in water for most purposes In planning the total fluid intake for twenty-four hours, it is appropriate to add dextrose in water to isotonic sodium chloride solution and other solutions containing electrolyte However, the electrolyte should be administered in quantities appropriate for replacement of deficits and expenditure of electrolyte Since isotonic sodium chloride solution requires about one fourth to one half of its water to excrete the salt in the urine, sodium chloride solutions should not be regarded as a means of supplying more than a minor part of the water requirement Except during the first twenty-four hours of treatment, when a large deficit of electrolyte is being replaced, the total mixture given over a period of twenty-four hours should not contain more than one-third isotonic electrolyte

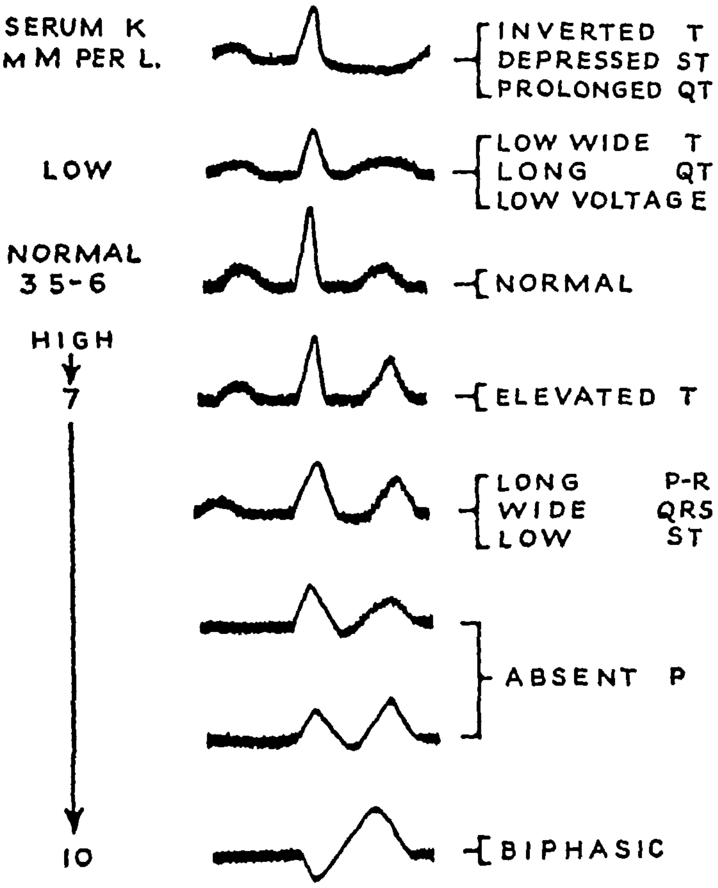


Fig 6 —Diagrammatic representation of the changes in the electrocardiogram associated with the changes in the concentration of potassium in serum

FLUIDS FOR REPLACEMENT OF ELECTROLYTE

Isotonic sodium chloride solution is the basic solution in this category because it appropriately contains the principal ions of extracellular fluids and is easily sterilized It contains relatively more chloride than extracellular fluids A mixture of two or three parts isotonic sodium chloride solution and one part isotonic (sixth-molar) sodium lactate solution more nearly resembles interstitial fluid Hartmann's lactated Ringer's solution and a suitable mixture of sodium chloride and sodium bicarbonate imitate interstitial fluid quite closely Isotonic sodium lactate injection is given primarily to replace a deficit of sodium relatively greater than the deficit of chloride Deficit of sodium is probably never greater than 12 ml of molar sodium lactate per kilogram of body weight or the equivalent amount of sodium bicarbonate (1 Gm) Seventy milliliters per kilogram of body weight is therefore the maximum dose of sixth-molar sodium lactate for immediate replacement over a short period It is probably seldom, if ever, advisable to use this much sodium lactate or the equivalent amount of sodium bicarbonate, but larger doses may be required over a period of several days if sodium loss continues The treatment of metabolic acidosis with excessive amounts of sodium bicarbonate or sodium lactate, particularly if deficit of potassium is not replaced, may produce alkalosis and tetany It has been shown that signs and symptoms of tetany do not occur when the concentration of calcium in serum is at levels usually accompanied by tetany if the concentration of potassium is abnormally low Restoring the level of serum potassium to normal may induce tetany if the serum calcium remains low For this reason attention must be paid to the possibility of low concentrations of both calcium and potassium occurring in the same patient [78] Ionic solutions containing chiefly sodium and chloride produce no toxic ionic effects and diffuse rapidly out of the vascular compartment into the interstitial fluids They may be injected as rapidly as 30 ml per kilogram of body weight per hour except when there are cardiac or other contraindications to rapid infusion

The solution containing sodium chloride, sodium lactate and potassium chloride developed by Darrow (called "K-lactate") contains sodium and chloride in the ratio of interstitial fluid together with an amount of potassium which is unlikely to raise the serum concentration of potassium to toxic levels when the solution is injected over a period of four or more hours in amounts which give appropriate amounts of sodium and chloride It contains 4 0 Gm of sodium chloride, 2 7 Gm of potassium chloride and 52 ml of molar sodium lactate per liter The concentration of potassium is about ten times as great as that of serum In order to avoid the danger of potassium intoxication, it should be injected, preferably subcutaneously, over a period of four or more hours for the dose appropriate for one day Theoretically and practically, it is not necessary to give more than 80 ml per kilogram in order to replace a maximum deficit of extracellular electrolyte The deficits of potassium are often so large that they cannot be restored parenterally in less than six days because of the dangers of more rapid parenteral administration of potassium and because administration of more potassium does not restore cell deficits more rapidly [79] "K-lactate" may be injected slowly into the veins or subcutaneously If given intravenously, one part of the "K-lactate" solution should be diluted with two or three parts of 5 or 10 per cent dextrose in water Butler and Talbot [80] have advocated a solution for intravenous use that is similar to "K-lactate" diluted with two parts 5 or 10 per cent dextrose in water This solution contains 5 millimoles of phosphate per liter and is appropriate for diabetic coma and may have advantages in diarrhea and other conditions Since acidosis is usually dependent on loss of potassium as well as sodium, solutions containing potassium as well as sodium salts are practically always indicated in acidosis In the acidosis of diarrhea, it has seldom seemed necessary to administer sodium bicarbonate or sodium lactate in addition to that contained in the "K-lactate" solution Since the dehydration of diarrhea probably presents as severe a depletion of electrolyte as is found in any condition, this solution should be equally effective in other types of acidosis (such as diabetic acidosis and nondiabetic ketosis) Potassium-containing solutions should not be used in Addison's disease and should be used only in appropriate cases of renal acidosis

In alkalosis with potassium depletion as well as relative deficit of chloride in relation to sodium, theoretic considerations indicate that a mixture containing about 6 Gm of sodium chloride and 2 7 Gm of potassium chloride per liter should be more effective than isotonic sodium chloride solution Such a solution may be injected subcutaneously at a slow rate but should be diluted with two or three parts 5 or 10 per cent dextrose in water if injected into the veins N K. Ordway informs us that he has successfully used higher concentrations of potassium and equal parts of isotonic sodium chloride and potassium chloride Ammonium chloride has been injected intravenously in severe alkalosis[81] While this therapy is effective in hastening the restoration of the concentration of bicarbonate in serum, it fails to correct the deficiency of potassium which is the cause of the ineffectiveness of isotonic sodium chloride solution in refractory alkalosis

FLUIDS FOR PARENTERAL FEEDING

Parenteral feeding is limited to vitamins and solutions of dextrose and amino acids, since intravenous injection of fats is still experimental Amino acids and protein hydrolysates may supply the protein needs when combined with dextrose About 2 Gm per 100 calories metabolized is the usual amount given in twenty-four hours, that is, about 1 Gm per kilogram in adults and 2 5 Gm per kilogram in infants The amino acids are usually combined with dextrose, water and electrolyte so as to meet all the expenditure of water and electrolyte A mixture of 2 Gm of amino acids in 150 ml of 10 per cent dextrose yields about 68 calories, while 2 Gm in 225 ml of 10 per cent dextrose yields 100 calories These units are appropriate amounts to be given per estimated 100 calories metabolized Both supply the water requirement, but only the latter meets the caloric expenditure

SOLUTIONS FOR THE PREVENTION OR TREATMENT OF SHOCK

Compatible whole blood in amounts of 30 ml per kilogram of body weight for an infant to half that amount for an adult is, in general, the most effective agent for the prevention or treatment of shock Whole blood is indicated to sustain red cells and plasma volumes and to add to the oxygen-carrying capacity of the vascular compartment The red cells have important functions in carbon dioxide transport and in the buffer effect of hemoglobin In dehydration due to loss of electrolytes the effectiveness of the appropriate electrolyte solution is enhanced if blood (or plasma) is also administered[30] The prejudice against giving whole blood in dehydration is unfounded experimentally, and, when accompanied by proper quantities of water and electrolyte solutions, the administration of whole blood has clinically demonstrated its value[82]

Plasma, either separated from cells or reconstituted from lyophilized plasma, has the advantage of greater availability but is somewhat inferior to whole blood except in a few conditions Because of the dangers of hepatitis, irradiated plasma or plasma derived from a single donor is much safer than pooled plasma Human serum albumin given in its concentrated form has a greater effect on the oncotic pressure in the vascular compartment than plasma or whole blood and does make it possible to supply relatively large amounts of serum albumin to patients The following paragraphs will illustrate how certain situations are met when patients are unable automatically to meet fluid requirements

The need to administer all fluids parenterally arises frequently in all fields of medicine but particularly in the postoperative care of surgical patients Since only sodium chloride solutions are well tolerated when injected subcutaneously, all or a large part of the water requirement must be given by vein The most convenient method of injection is infusion of appropriate solutions through intravenous drip The solutions required should be carefully calculated to fulfil the needs for twenty-four hours, and the rate of injection should be regulated with due consideration for the comfort of the patient and the dangers of too rapid injection When there are no abnormal losses or shock, the requirement of electrolyte is small, probably not over 10 to 20 ml of isotonic sodium chloride solution per 100 calories metabolized After operative procedures the kidneys tend to conserve both water and sodium chloride[83] For this reason it usually is desirable to limit the intake of water and salt to the requirements for low urine losses Furthermore, adding sodium chloride to dextrose solutions leads to retention of sodium and excretion of potassium[83] The amount of electrolyte released by the catabolism of tissues during fasting may be sufficient to cover obligatory expenditure in many patients Five grams of dextrose per 100 calories metabolized will induce maximal sparing of protein Further protection of body protein can only be obtained by the addition of 2 to 3 Gm of amino acids together with sufficient dextrose to cover the caloric expenditure The calculation of the total fluid requirement is indicated in the previous section, in which the factors controlling water expenditure are discussed For each 100 calories metabolized, water requirement lies between 90 and 125 ml Ten to twenty milliliters may be given as isotonic sodium chloride solution or as "K-lactate" and the rest as 5 or 10 per cent dextrose in water Two grams of amino acids may be added to the fluid in appropriate cases A 5 Kg infant metabolizing 500 calories would require between 450 and 625 ml of a suitable mixture, while an adult would need between 1,600 and 2,250 ml In addition to the minimal requirement of water and electrolyte, patients with abnormal losses of water, sodium, chloride and potassium may require treatment for shock, replacement of the deficits and provision for continuing losses of water and electrolyte The fluids used will vary considerably according to the initial serum electrolyte concentrations, the disturbances in acid-base equilibrium, the age and the amount and kind of abnormal losses

When there are profound circulatory disturbances and shock the initial treatment should be infusion of 20 to 30 ml per kilogram of body weight of a solution containing chiefly sodium chloride If there is metabolic acidosis, a mixture of one part isotonic sodium lactate and two parts isotonic sodium chloride solution is better than sodium chloride alone, though the latter is usually effective. Blood transfusions should follow as soon as possible in severe cases. Plasma may be used in the place of blood and sodium chloride when blood is not available. In metabolic alkalosis the same initial plan of therapy is followed except that isotonic sodium chloride solution is the appropriate solution. In both acidosis and alkalosis the replacement of potassium as well as of sodium and chloride may be started as soon as the circulation has improved and urine is being formed.

The deficit of extracellular electrolyte is seldom greater than one third of the normal content, even in the most severe dehydration. Hence, with babies with severe losses of water and electrolyte, the deficiency of sodium and chloride is restored by 80 ml. per kilogram of body weight of the appropriate solution containing these ions at about physiologic concentration. Seventy milliliters per kilogram suffices for adults. Smaller amounts are required in less severe cases. The deficit of water is replaced by the appropriate sodium chloride solution together with the water given to cover obligatory expenditure. The deficits of potassium may reach half the total muscle content in experimental animals or about 25 millimoles per kilogram of body weight. Probably 15 millimoles of potassium per kilogram of body weight is encountered in patients. A large deficit probably cannot be replaced in less than four to six days, since the cells do not repair this deficiency rapidly. Although as much as 7 milliequivalents of potassium per kilogram has been given parenterally, 3 milliequivalents (0.22 Gm. of potassium chloride) per kilogram per day is as much as is safe and efficiently utilized.

In acidosis, deficit of extracellular electrolyte is usually satisfactorily replaced by a mixture of one part isotonic sodium lactate and two parts isotonic sodium chloride solution. Since, in most instances, acidosis is accompanied by potassium deficit, "K-lactate" usually is more appropriate. In diabetes and perhaps in other conditions, the addition of about 0.7 Gm. potassium dihydrogen phosphate per liter, as advocated by Butler and Talbot, is advantageous. Isotonic sodium chloride solution is usually effective in alkalosis, but, if vomiting has been prolonged or postoperative suction is being carried out, the solution containing 6 Gm. of sodium chloride and 2.7 Gm. of potassium chloride is indicated. Any of these solutions may be injected subcutaneously, but, if given intravenously, the solutions containing potassium should be diluted with two or three parts of 5 or 10 per cent solution of dextrose in water. Potassium-containing solutions should be given over a period of four or more hours in either instance. If given subcutaneously, appropriate amounts of dextrose in water should be injected intravenously unless sufficient water is taken by mouth. After replacement of the initial deficit of water and electrolyte, the continuing losses can be replaced and the obligatory expenditure covered by administration of 125 to 150 ml. per 100 calories metabolized of a mixture of one part of the appropriate electrolyte solution and two or three parts 5 or 10 per cent dextrose in water. As long as there is deficit of water and electrolyte, oral feeding is likely to induce vomiting and may aggravate diarrhea. After the initial deficits of water and electrolyte are replaced, solutions containing water and electrolyte are often well tolerated orally and may be given before food can be ingested.

In infantile diarrhea, milk feeding increases the loss of water and electrolyte in the stools and should be omitted for twenty-four hours or until one is assured that milk will not lead to vomiting or greatly increase the bulk of the stools. Food should be started by giving 10 to 20 calories per kilogram of a suitable milk mixture diluted with sufficient water to cover a high rate of expenditure (150 ml. per kilogram). With the total intake of water kept constant, the proportion of milk should gradually be increased over a period of five to twelve days until full caloric feeding is given (100 calories per kilogram). One gram of potassium chloride should be added to each day's food when the milk mixture is providing less than 70 calories per kilogram per day. Most infants with severe dehydration in diarrhea should receive transfusions. Provision for more sodium lactate or bicarbonate than is obtained from "K-lactate" is seldom, if ever, necessary to overcome the acidosis in infantile diarrhea. Adults may be treated similarly by basing the amounts of fluid for expenditure on the estimated caloric production.

Treatment of diabetic acidosis requires the proper replacement of deficits of water, sodium, chloride, potassium and phosphate as well as the administration of insulin. Blood transfusions are seldom necessary. "K-lactate" fortified with phosphate is indicated for replacement of electrolyte. Dextrose in water is indicated to provide water for obligatory water expenditure as long as fluid cannot be taken orally. When the blood sugar is high, the injection of dextrose may be delayed for an hour or two until the effect of insulin injection is taking place. Broth and diluted fruit juices may be taken early in diabetic acidosis, and both provide considerable potassium. Broth should contain sodium chloride at about one-fourth physiologic strength (2.25 Gm. sodium chloride per liter).

Deficiency of sodium and chloride but not potassium develops in the patient with adrenal insufficiency. A mixture of one part isotonic sodium lactate solution and two parts isotonic sodium chloride solution may be used to replace the deficit of electrolyte. Solutions containing large amounts of potassium should not be given. Dextrose solutions are essential for support of the blood sugar, as well as for provision of water. Desoxycorticosterone acetate corrects the disturbance in renal function but does not replace the other functions of the adrenal glands. Large doses of cortical extract are the only means of fully replacing the adrenocortical functions. At present, the adrenocortical extracts do not contain sufficient active steroids completely to fulfil the functions of the adrenal glands except in large amounts and at prohibitive costs.

Most patients with gastric alkalosis are satisfactorily treated with isotonic sodium chloride solution. However, potassium deficiency will have developed in a number who will require both potassium and sodium chloride. Surgical patients subjected to duodenal drainage require replacement of potassium as well as sodium chloride. The possibility of potassium deficiency as the primary cause of metabolic alkalosis should always be borne in mind. This phenomenon is encountered in certain patients with adrenocortical tumors, patients receiving desoxycorticosterone acetate and sodium chloride, patients with chronic diarrhea who take little food and patients who have recovered from acidosis accompanied by potassium deficiency and who were treated with sodium salts while they were unable to take adequate amounts of food If electrolyte concentration is high, little or no electrolyte solution may be required Fluids should consist chiefly of intravenously administered dextrose in water

The treatment of acidosis seldom requires fluids containing more sodium bicarbonate or sodium lactate than is contained in one part isotonic sodium lactate solution and two parts isotonic sodium chloride solution or "K-lactate" (80 cc per kilogram for the most severe types) If insufficient water is given when isotonic sodium chloride solution alone is used, acidosis may be aggravated, particularly if there is deficit of potassium as well as of sodium and chloride If sodium lactate is given in severe acidosis, the amount should be about 5 to 10 ml of molar sodium lactate per kilogram This may be given intravenously at third-molar or fourth-molar concentration if one is dealing with hypotonic dehydration In hypertonic dehydration, sixth-molar is the best concentration for intravenous injection Sodium lactate injection may be given subcutaneously after dilution to sixth-molar concentration

The treatment of edema is directed primarily toward the factors producing edema, such as the low concentration of albumin, heart failure and renal disease Purified low sodium albumin is the most effective diuretic in patients with low serum albumin When edematous patients have low electrolyte concentration, renal and circulatory functions may sometimes be improved by restoring the sodium concentration with the intravenous injection of 2 or 3 per cent solution of sodium chloride However, restriction of salt is advantageous in most types of edema On the other hand, if water intake has been restricted, Schemm[84] points out that diuresis is most likely to occur when the intake of water is increased, salt restricted and the diet yields a neutral or acid ash To be effective, Schemm emphasizes that the water intake must be extremely high (4,000 ml in adults) It is probable that the effectiveness of Schemm's treatment is dependent on the avoidance of conditions leading to a concentrated urine Acidosis in edematous nephritic patients may require the oral or intravenous administration of sodium bicarbonate or lactate Such treatment is instituted with reluctance since the intake of sodium bicarbonate aggravates the edema

SUMMARY

The first two sections discuss the relation of the vascular to the extracellular compartments and the composition of the body as a whole The changes in composition taking place in dehydration, acidosis and alkalosis, the changes in electrolyte concentration and the changes in the volume of extracellular fluids are described Emphasis is placed on alterations in intracellular as well as extracellular fluids Changes in the relation of body sodium, potassium and chloride are related to the acid-base equilibrium as well as to changes in hydration and water distribution The third section discusses the factors controlling expenditure of water and electrolyte Normal water expenditure is closely correlated to heat production and urinary concentration Sweat volume is related to heat balance The abnormal losses occurring in the urine, stools, vomitus and other gastrointestinal secretions are described The fourth and fifth sections describe the symptoms and diagnosis of hypokalemia and deficiency of potassium and hyperkalemia The sixth section discusses fluid therapy in the light of the concepts developed in the previous sections It is pointed out that the aim of fluid therapy is to restore and maintain the normal composition of the tissues

REPORT OF THE COUNCIL

The following statement has been accepted by the Council on Foods and Nutrition James R Wilson, M D, *Secretary*

ASCORBIC ACID CONTENT OF GRAPEFRUIT JUICE

The Council on Foods and Nutrition has recognized for many years the importance of making available dependable sources of vitamin C The value of citrus fruit as a source of vitamin C is well known, and at the present time the Council considers for acceptance orange juice having a natural ascorbic acid content of at least 40 mg per hundred milliliters when packed

In order to encourage the production and use of other citrus fruit juices containing high natural levels of ascorbic acid, the Council has decided to consider for acceptance grapefruit juice and blends of grapefruit juice and orange juice After a study of what might reasonably be expected from a high grade fruit, carefully selected and processed by one of the modern methods, the Council decided to consider for acceptance grapefruit juice having a natural ascorbic acid content of at least 30 mg per hundred milliliters The ascorbic acid value for acceptable orange and grapefruit juice blends will, of course, be dependent on the proportion of each juice in the mixture.

ACCEPTED FOODS

The following products have been accepted as conforming to the rules of the Council James R Wilson, M D, *Secretary*

Richmond Chase Company San Jose Calif

Diet Delight Brand Halves Unpeeled Apricots consists of the fruit itself packed in water without any added sugar or salt

Analysis (submitted by manufacturer) —Moisture 89 8% ash 0 4% fat 0 07% protein 0 5% available carbohydrates (total sugar as invert) 6 3% carbohydrates by difference 8 8% crude fiber 0 4%

Calories —0 28 per gram 7 9 per ounce

Use —For use in calory restricted diets

Diet Delight Brand Halves Bartlett Pears consists of the fruit itself packed in water without any added sugar or salt

Analysis (submitted by manufacturer) —Moisture 92 1% ash 0 2% fat 0 2% protein 0 3% available carbohydrates (total sugar as invert) 5 9% carbohydrates by difference 6 1% crude fiber 1 1%

Calories —0 27 per gram 7 7 per ounce

Use —For use in calory restricted diets

Diet Delight Brand Halves Yellow Cling Peaches consists of the fruit itself packed in water without any added sugar or salt

Analysis (submitted by manufacturer) —Moisture 90 5% ash 0 3% fat 0 02% protein 0 4% available carbohydrates (total sugar as invert) 4 9% carbohydrates by difference 8 5% crude fiber 0 3%

Calories —0 22 per gram 6 3 per ounce

Use —For use in calory restricted diets

Diet Delight Brand Sliced Yellow Cling Peaches consists of the fruit itself packed in water without any added sugar or salt

Analysis (submitted by manufacturer) —Moisture 90 5% ash 0 3% fat 0 02% protein 0 4% available carbohydrates (total sugar as invert) 5 0% carbohydrates by difference 8 5% crude fiber 0 3%

Calories —0 22 per gram 6 3 per ounce

Use —For use in calory restricted diets

Diet Delight Brand Fruit Cocktail consists of peaches pears grapes pineapple and artificially colored and flavored cherries packed in water without any added sugar or salt.

Analysis (submitted by manufacturer) —Mosiure 88 9% ash 0 3% fat 0 1% protein 0 6% available carbohydrates (total sugar as invert) 6 6% carbohydrates by difference 9 6% crude fiber 0 5%

Calories —0 31 per gram 8 7 per ounce

Use —For use in calory restricted diets

Council on Physical Medicine and Rehabilitation

REPORT OF THE COUNCIL

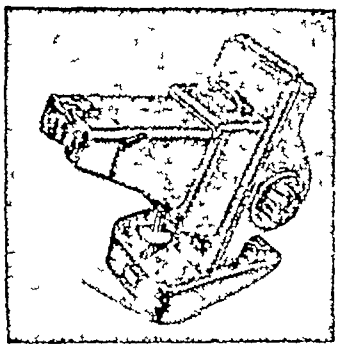
The Council on Physical Medicine and Rehabilitation has authorized publication of the following reports

HOWARD A CARTER, *Secretary*

SIGHT-SCREENER, MODEL 1235, ACCEPTED

Manufacturer American Optical Company, Southbridge, Mass

The Sight-Screener is a portable vision-testing instrument with which suitably trained technicians can test groups of persons and can secure data useful to a professional worker in determining whether a person tested should be advised to secure a professional ophthalmologic examination The instrument is designed to stand on a table while the patient sitting before it observes a succession of test fields through two polarizing viewers located in the face of the instrument



Sight Screener

The following information can be obtained by using this instrument (1) indication of tendency to see binocularly, to suppress one eye or the other, or to see alternately with one eye and then with the other, (2) measure of acuity of right eye, (3) measure of acuity of left eye, (4) measure of acuity of both eyes, (5) degree of stereopsis, (6) tendencies to right or left hyperphoria, and (7) tendencies to exophoria or esophoria This information is obtained both at the optical equivalent of 20 feet and at an actual 14 inch distance

The manufacturer supplied the following data

		Metric	English
Dimensions unpacked,	length,	51 cm	20 inches
	height	43 cm	17 inches
	width,	23 cm	9 inches
Weight unpacked		10 kg	22 pounds
Dimensions packed,	length,	56 cm	22 inches
	height	48 cm	19 inches
	width,	30 5 cm	12 inches
Weight, packed for domestic shipment		22 kg	49 pounds
Weight, packed for foreign shipment		43 kg	95 pounds

The device requires a source of either alternating or direct current at 115 volts and draws 50 watts

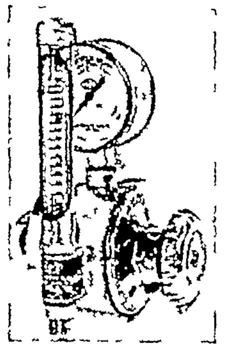
Evidence from sources acceptable to the Council indicated that this device was sound in principle and satisfactory in construction The Council on Physical Medicine and Rehabilitation voted to include the Sight-Screener, Model 1235, in its list of accepted devices

AIRCO OXYGEN THERAPY REGULATOR, NOS 806-8480 AND 806-8482, ACCEPTED

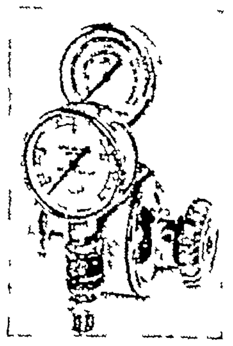
Manufacturer Air Reduction Company, Inc, Research Laboratories, Murray Hill, N J

These two devices are alike in that they are two-stage regulators equipped with gages for indicating both the rate of flow of the oxygen (up to 15 liters per minute) and the residual-cylinder content No 806-8480 is a two stage dial regulator One dial shows the rate of oxygen flow, the other shows the pressure in the tank This regulator has the following over-all dimensions 20 by 18 by 14 cm (8 by 7 by 5½ inches) The net, legal, domestic shipping and foreign shipping weights are, respectively, 2 6, 2 9, 3 2 and 5 0 Kg (5 lbs 12 oz, 6 lbs 6 oz, 7 lbs and 11 lbs)

No 806-8482 is used on medical oxygen cylinders It therefore needs an adaptor for use with commercial oxygen It has a float type of flowmeter and may be used with or without a humidifier It has the following over-all dimensions 23 by 20 by 15 cm (9 by 8 by 6 inches) The net weight, legal weight, domestic shipping weight and foreign shipping weight are, respectively, 2 6, 2 9, 3 3 and 5 4 Kg (5 lbs 10 oz, 6 lbs 6 oz, 7 lbs 6 oz and 12 lbs)



Airco Oxygen Therapy Regulator No 806 8480



Airco Oxygen Therapy Regulator No 806 8482

In both regulators the face of the pressure dial carries two volume scales for indicating cylinder contents in liters (referring to a temperature base of 70 F and a pressure of one atmosphere) The outer scale (0-6,000) refers to the content in liters when using a "220 cu ft" cylinder of oxygen The other scale (0-3,000) refers to the contents in liters when using "110 cu ft" cylinder Each regulator is provided with a safety valve for relieving excessive pressures The action of this safety release is always preceded or accompanied by a protrusion of the signal button from the back cap of the regulator

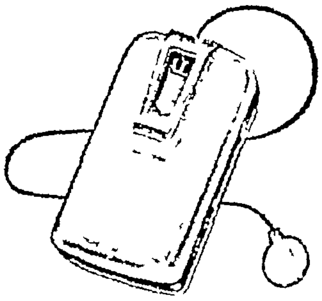
During prolonged clinical use, both devices fulfilled the manufacturer's claims The Council on Physical Medicine and Rehabilitation therefore voted to include the Airco Oxygen Therapy Regulator, Nos 806-8480 and 806-8482, in its list of accepted devices

ZENITH MINIATURE 75 HEARING AID ACCEPTED

Manufacturer Zenith Radio Corporation, 6001 Dickens Avenue, Chicago 39

The instrument is used to aid a deafened person to hear better The front and back covers are metal The lower half of the back swings upward to expose the battery compartment The wheel-type volume control and off switch is at one upper, back corner and a wheel-type tone control with four positions is at the other upper corner The receiver cord is a two conductor, plastic-insulated cord molded into a single unit It is reversible and is reinforced with plastic tubing at its terminals

The outside dimensions of the instrument, without the clothing clip, are as follows 100 mm long, 60 mm wide and 23 tapering to 20 mm thick The weight with batteries, receiver and cord is 189 Gm Exclusive of batteries the weight is 124 Gm Receiver and cord alone weigh 9 Gm The hearing aid requires zinc-carbon batteries, an A-battery at 1 5 volts and a B-battery at 22 5 volts It is claimed that the drain on the A-battery at 1 25 volts is 30 milliamperes and on the B-battery at 22 5 volts, 0 4 milliamperes The batteries and three vacuum tubes are readily removable for replacement



Zenith Miniature 75 Hearing Aid

Evidence from a laboratory acceptable to the Council indicated that the specimen submitted gave satisfactory results in acoustical performance tests and that it was well constructed The Council on Physical Medicine and Rehabilitation voted to include the Zenith Miniature 75 Hearing Aid in its list of accepted devices

MEDICAL LICENSURE STATISTICS FOR 1949

FORTY-EIGHTH ANNUAL PRESENTATION OF LICENSURE STATISTICS BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN MEDICAL ASSOCIATION

Donald G Anderson, M D, Secretary, and Anne Tipner

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This report is the forty-eighth annual compilation of information and statistics pertaining to medical licensure in the United States, its territories and outlying possessions by the Council on Medical Education and Hospitals of the American Medical Association

The report presents statistics referring to medical examining and licensing boards of all states, Alaska, Hawaii, Puerto Rico and the Virgin Islands The figures for Connecticut and Louisiana also include data reported by the homeopathic medical examining boards of those states

As in previous years, there is included data pertaining to the National Board of Medical Examiners and the boards of examiners in the basic sciences

The compilations included in this study are obtained from official reports The Council and THE JOURNAL express their appreciation to the officers of the examining and licensing agencies for these data and for other records furnished throughout the year to the office of the Council

The tables referring to medical licensure include figures for the number of candidates examined for medical licensure in 1949 and also for those licensed on the basis of reciprocity or endorsement of credentials There are also included other pertinent data pertaining to the regulations for medical licensure of physicians who secured their professional training in the United States and Canada and also for physicians trained in other countries The state boards are discussed first, followed by the basic science boards and the National Board of Medical Examiners

STATE BOARDS OF MEDICAL LICENSURE

Licenses Issued

During the year 1949 there were 12,181 licenses to practice medicine issued by the medical examining boards of the 48 states, the District of Columbia Alaska, Hawaii Puerto Rico and the Virgin Islands The numbers licensed in each state, by examination or by the endorsement of credentials, is shown in table 1 Of the 12,181 licenses issued 5 252 were granted after written examination and 6 929 by reciprocity or endorsement of state licenses or the certificate of the National Board of Medical Examiners

It does not follow that all physicians certified after examination were tested in a given year In 23 states, the District of Columbia, Alaska, Hawaii, Puerto Rico

TABLE 1—*Licenses Issued, 1949*

	Examination	On the Basis of Reciprocity and Endorsement	Total
Alabama	16	88	104
Arizona	22	77	99
Arkansas	52	39	91
California	484	1,027	1,511
Colorado	78	83	161
Connecticut	32	197	229
Delaware	21	10	31
District of Columbia	30	197	227
Florida	325	0	325
Georgia	100	70	170
Idaho	37	15	52
Illinois	370	220	590
Indiana	98	139	237
Iowa	64	132	196
Kansas	99	86	185
Kentucky	86	72	158
Louisiana	164	86	250
Maine	25	44	69
Maryland	178	123	301
Massachusetts	70	319	389
Michigan	196	215	411
Minnesota	184	128	312
Mississippi	34	61	95
Missouri	194	122	316
Montana	8	36	44
Nebraska	52	47	99
Nevada	4	26	30
New Hampshire	7	66	73
New Jersey	76	270	346
New Mexico	4	44	48
New York	411	1 041	1 452
North Carolina	88	128	216
North Dakota	24	24	48
Ohio	290	278	568
Oklahoma	70	61	131
Oregon	47	103	150
Pennsylvania	397	247	644
Rhode Island	15	25	40
South Carolina	43	40	83
South Dakota	10	29	39
Tennessee	140	78	218
Texas	145	292	437
Utah	31	38	69
Vermont	14	34	48
Virginia	110	123	233
Washington	71	153	224
West Virginia	61	53	114
Wisconsin	109	86	195
Wyoming	1	16	17
Alaska Hawaii Puerto Rico and Virgin Islands	56	41	97
Totals	5 252	6 929	12 181

TABLE 2—CANDIDATES EXAMINED BY

Marginal Number	SCHOOL	1 Alabama		2 Arizona		3 Arkansas		4 California		5 Colorado		6 Connecticut		7 Delaware		8 Dist of Columbia		9 Florida		10 Georgia		11 Idaho		12 Illinois		13 Indiana		14 Iowa		15 Kansas		16 Kentucky		17 Louisiana		18 Maine		19 Maryland		20 Massachusetts		21 Michigan		22 Minnesota	
		P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F
	ALABAMA																																												
1	Medical College of Alabama, Birmingham	29	0															1	0							1	0																		
	ARKANSAS																																												
2	University of Arkansas School of Medicine, Little Rock					51	0	1	0									4	0					1	0																				
	CALIFORNIA																																												
3	University of California Medical School San Francisco							64	1									1	0																										
4	Coll of Medical Evangelists, Loma Linda Los Angeles			1	0			80	7	1	0							9	0			4	0	1	0															1	0			9	0
5	Univ of So California School of Med, Los Angeles			1	0			54	0															1	0																	1	0		
6	Stanford University School of Medicine, Stanford University San Francisco							50	2			1	0											1	0																	1	0	1	0
	COLORADO																																												
7	University of Colorado School of Medicine, Denver			1	0			3	1	49	0											3	0			1	0			1	0									1	0				
	CONNECTICUT																																												
8	Yale University School of Medicine, New Haven									1	0	2	0	1	0			1	0					1	0											1	0								
	DISTRICT OF COLUMBIA																																												
9	George Washington Univ School of Med, Washington							5	1			1	0	1	0	5	0	6	0															1	0							2	0		
10	Georgetown University School of Med, Washington							1	0							2	0	4	0																	2	0	3	0	0	2			1	0
11	Howard University College of Medicine, Washington													1	0	9	0	1	0	1	0			4	0									1	0			11	2			1	0		
	GEORGIA																																												
12	University of Georgia School of Medicine, Augusta																	7	0	61	4			1	0																				
13	Emory University School of Med, Emory University											1	0					21	0	37	0			2	0																				
	ILLINOIS																																												
	Northwestern University Medical School, Chicago	1	0	3	0			12	0	1	0							3	0			2	0	61	1			1	0			1	0							1	0	3	0	13	0
	Stritch School of Med of Loyola University, Chicago			1	0			0	1									4	0			1	0	35	0	3	1	2	0											2	0	1	0	2	0
	University of Chicago, The School of Med, Chicago							7	0	1	0					1	0					2	0	25	0	1	0											5	0			3	0	8	0
17	University of Illinois College of Medicine, Chicago	1	0	3	0			19	0	4	0					1	0	7	0			1	0	88	2	2	0	1	0	3	0	2	0	1	0							8	0	7	0
	INDIANA																																												
18	Indiana University School of Medicine, Bloomington Indianapolis							8	0									7	0					1	0	78	2													1	0	1	0	3	0
	IOWA																																												
19	State University of Iowa College of Med, Iowa City			1	0			4	0	1	0							2	0					3	0			37	0													1	0		
	KANSAS																																												
20	Univ of Kansas School of Med, Lawrence-Kansas City							5	1															1	0					82	0													7	0
	KENTUCKY																																												
21	University of Louisville School of Medicine, Louisville							1	1									14	1			1	0	1	0							77	0											1	0
	LOUISIANA																																												
22	Louisiana State Univ School of Medicine, New Orleans							4	0									1	0					1	0									51	0										
23	Tulane University of Louisiana School of Medicine New Orleans	1	0					4	0									9	0					1	0									92	0										
	MARYLAND																																												
24	Johns Hopkins University School of Med, Baltimore	1	0											1	0			4	0	2	0																	63	0					2	0
25	University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore											1	0	1	0			1	0					1	0													48	0					3	0
	MASSACHUSETTS																																												
26	Boston University School of Medicine, Boston									1	0							1	0																					1	0	1	0	1	0
27	Harvard Medical School, Boston	2	0					2	0									5	0					2	0					1	0			2	0	1	0	1	0	3	0	2	0	1	0
28	Tufts College Medical School, Boston							1	0									6	1					1	0									2	0	6	1			3	0			1	0
	MICHIGAN																																												
29	University of Michigan Medical School, Ann Arbor							6	0	1	0			1	0			6	2					2	0	1	0			1	0							1	0			82	0	2	0
30	Wayne University College of Medicine, Detroit							5	0									3	0			1	0	3	0																	36	0		
	MINNESOTA																																												
31	University of Minnesota Medical School, Minneapolis			2	0			2	1	1	0							4	0			3	0	9	1	1	0			1	0			1	0									79	0
	MISSOURI																																												
32	St Louis University School of Medicine, St Louis							10	3									6	0					3	0																				
33	Washington University School of Medicine, St Louis							1	0									4	0					3	0																				
	NEBRASKA																																												
34	Creighton University School of Medicine, Omaha	1	0					11	3	1	0											1	1	2	0			9	0	1	0	2	0	1	0			1	0					2	0
35	University of Nebraska College of Medicine, Omaha							1	1													3	0	1	0					1	0													1	0
	NEW YORK																																												
36	Albany Medical College, Albany																	7	0									2	0																
37	Long Island College of Medicine, Brooklyn	1	0					2	0			2	0			1	0													1	0														
38	University of Buffalo School of Medicine, Buffalo							1	0									6	0																					0	1				
39	Columbia University College of Physicians and Surgeons, New York			1	0			1	0									7	0					1	0									1	0			1	0	2	0				
40	Cornell University Medical College, New York			1	0			3	0					1	0	1	0	5	1					1	0									1	0	2	0	1	0	2	0				
41	New York Medical College, Flower and Fifth Avenue Hospitals, New York							3	0			1	1					1	0	1	0																	1	0						
42	New York University College of Medicine New York											1	0	1	0			4	0					2	0	1	0											1	0			1	0		
43	University of Rochester School of Medicine and Dentistry, Rochester	1	0					2	0			1	0					1	0																	1	0	4	0			1	0	1	[illegible]
44	Syracuse University College of Medicine, Syracuse							1	0									1	0					3	0									1	0			2	0	1	1			1	0
	NORTH CAROLINA																																												
45	Duke University School of Medicine, Durham									1	0							13	0	1	0																								
46	Bowman Gray School of Medicine of Wake Forest College, Winston Salem																																					1	0						
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22	

23 Mississippi		24 Missouri		25 Montana		26 Nebraska		27 Nevada		28 New Hampshire		29 New Jersey		30 New Mexico		31 New York		32 North Carolina		33 North Dakota		34 Ohio		35 Oklahoma		36 Oregon		37 Pennsylvania		38 Rhode Island		39 South Carolina		40 South Dakota		41 Tennessee		42 Texas		43 Utah		44 Vermont		45 Virginia		46 Washington		47 West Virginia		48 Wisconsin		49 Wyoming		50 Alaska, Hawaii Puerto Rico and Virgin Islands		Totals	Examined—Passed	Examined—Failed	Percentage—Failed	No Boards Examined by	Marginal Number
P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F						
																																																								31	31	0	0.0	8	1
1	0	1	0													3	0			1	0																	0	1							1	0	1	0					1	0	67	66	1	1.5	12	2
																												1	0																					1	0					71	70	1	1.4	6	3
1	0															2	0			1	0					1	0											1	0																	110	103	7	6.4	12	4
																																														1	0									56	56	0	0.0	4	5
																										1	0											1	0																	58	56	2	3.4	7	6
										1	0					1	0																					1	0											1	0			1	0	65	64	1	1.5	12	7
		2	0									1	0																																			2	0							12	12	0	0.0	9	8
2	0															1	0									1	0	1	0											2	0					1	0	1	0							31	30	1	3.2	14	9
												2	1			2	3	1	0			1	0					3	0																	1	0	2	0							31	25	6	19.4	14	10
		3	0													7	2	12	0									2	0			1	0											1	0									1	0	60	56	4	5.9	15	11
																3	3	1	0											1	0																									81	74	7	8.6	6	12
																1	0																																							62	62	0	0.0	5	13
1	0	2	0													5	2	1	0	1	0	2	0			2	0	1	0					8	0					2	0					6	0	1	0	9	0			4	1	146	142	4	2.7	26	14
												1	0			2	2					2	0			1	0	3	0															1	0	2	0	1	0	4	0			1	0	73	69	4	5.5	20	15
																3	1	1	0							1	0											2	0	1	0					3	0							1	0	66	65	1	1.5	16	16
1	0	5	0	1	0							1	0			4	0	1	0	3	0	3	0			1	0							2	0					1	0					4	0			2	0			2	0	181	179	2	1.1	29	17
												1	0															1	0	1	0																							1	0	100	98	2	2.0	11	18
																						1	0			1	0																													51	51	0	0.0	9	19
																										1	1																			7	0									105	103	2	1.9	6	20
																2	0	2	0									1	0																			2	0					1	0	105	103	2	1.9	11	21
3	0															0	1											1	0																											62	61	1	1.6	7	22
7	0	1	0																																					1	0													8	0	119	119	0	0.0	9	23
				1	0			1	0							3	2	1	0									3	0																					1	0					85	83	2	2.4	12	24
												1	0					6	0			1	0					4	0																			3	0							70	70	0	0.0	11	25
																																																1	0	2	0					8	8	0	0.0	7	26
				1	0					1	0					2	0	2	0											1	0															2	0			2	0					33	33	0	0.0	18	27
				1	0			1	0			1	0					1	0																											1	0			1	0					28	26	2	7.1	13	28
																1	1					1	0					1	0									2	0											1	0					112	109	3	2.7	15	29
																																														3	0							2	0	53	53	0	0.0	7	30
																				4	0					0	1	1	0									4	1											4	0					120	116	4	3.3	15	31
		89	0													1	2											1	0	1	0																	2	0					4	1	123	117	6	4.9	9	32
		77	0															1	0			1	0			1	0																					1	0	1	0			1	0	91	91	0	0.0	10	33
						5	0																																											1	0			2	0	44	40	4	9.1	14	34
						46	3																																									1	0							58	54	4	6.9	7	35
																																																								9	9	0	0.0	2	36
												1	0			0	8											1	0	1	0															4	0	1	0							30	22	8	26.7	11	37
																0	1											1	0																			2	0							12	10	2	16.7	6	38
		2	0									2	0			8	3	1	0			1	0					2	0									2	0									1	0	2	0					38	35	3	7.9	16	39
				2	0							2	0			10	1					1	0																	1	0					3	0	1	0							40	38	2	5.0	17	40
												1	0			3	3	1	0	1	0																									1	0									18	14	4	22.2	10	41
												4	1			7	5											1	0															1	0									1	0	31	25	6	19.4	12	42
		3	0									1	0			5	3	1	0			4	0					1	0															1	0	1	0	2	0							34	31	3	8.8	17	43
																7	3					2	0					2	0																											25	21	4	16.0	10	44
												1	0					2	0									1	0			1	0													1	0	1	0	1	0			1	0	24	24	0	0.0	11	45
1	0	1	0	1	0											0	1	32	0	1	0							1	0																											39	38	1	2.6	8	46
23		24		25		26		27		28		29		30		31		32		33		34		35		36		37		38		39		40		41		42		43		44		45		46		47		48		49		50							

TABLE 2—CANDIDATES EXAMINED BY

Marginal Number	SCHOOL	1 Alabama		2 Arizona		3 Arkansas		4 California		5 Colorado		6 Connecticut		7 Delaware		8 Dist of Columbia		9 Florida		10 Georgia		11 Idaho		12 Illinois		13 Indiana		14 Iowa		15 Kansas		16 Kentucky		17 Louisiana		18 Maine		19 Maryland		20 Massachusetts		21 Michigan		22 Minnesota	
		P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F
	OHIO																																												
47	University of Cincinnati College of Med, Cincinnati							1	0									9	0					2	0							1	0												
48	Western Reserve University School of Med, Cleveland							1	0													1	0																					1	0
49	Ohio State University College of Medicine, Columbus			1	0			1	0									3	0																									3	0
	OKLAHOMA																																												
50	Univ of Oklahoma School of Med, Oklahoma City					1	0	2	0									1	0	2	0									2	0														
	OREGON																																												
51	University of Oregon Medical School, Portland							10	1									1	0			4	0					3	0	1	0											1	0	2	0
	PENNSYLVANIA																																												
52	Hahnemann Med Coll and Hospital of Philadelphia	1	0	1	0			9	0			3	0	2	0	1	0	7	1			1	0	1	1													7	3	1	1	1	0	1	0
53	Jefferson Medical College of Philadelphia	4	0	1	0			3	0			2	1	4	0			3	0					3	0	1	0	1	0	1	0							1	0	1	0			1	0
54	Temple University School of Medicine, Philadelphia							9	0	1	0	1	0	2	0			9	0			1	0	2	0	1	0							1	0	1	0	2	0			2	0	3	0
55	Univ of Pennsylvania School of Med Philadelphia	1	0					2	0									7	0	1	0	1	0	2	1													1	0	1	0	5	0	1	0
56	Woman's Med College of Pennsylvania, Philadelphia							2	0									1	0					1	0															1	0	2	0		
57	University of Pittsburgh School of Med, Pittsburgh	1	0					1	0			1	0					1	0					1	0													1	0			2	0		
	SOUTH CAROLINA																																												
58	Medical Coll of the State of So Carolina, Charleston																	3	0					1	0									1	0									2	0
	TENNESSEE																																												
59	University of Tennessee College of Medicine, Memphis			1	0			1	0			1	0	1	0			9	0	1	0			0	1																			4	0
60	Meharry Medical College, Nashville							1	0									3	0					4	1	0	1					1	0	1	0			1	1						
61	Vanderbilt University School of Medicine, Nashville																	6	0																										
	TEXAS																																												
62	Southwestern Medical School of the University of Texas, Dallas							1	0															1	0	1	0																	1	0
63	University of Texas School of Medicine, Galveston																	1	0																									6	0
	Baylor University College of Medicine, Houston							1	1															1	0																			1	0
	UTAH																																												
	niversity of Utah School of Medicine, Salt Lake City							10	0	1	0	1	0					1	0			7	0							1	0											2	0		
	VERMONT																																												
66	University of Vermont College of Medicine Burlington																																									1	0		
	VIRGINIA																																												
67	University of Virginia Dept of Med, Charlottesville	1	0											2	0			6	0					1	0																			1	0
68	Medical College of Virginia Richmond																	5	0	1	0			2	0																				
	WISCONSIN																																												
69	University of Wisconsin Medical School, Madison			1	0			7	0															1	1	1	0			2	0			3	0			2	0					2	0
70	Marquette University School of Medicine, Milwaukee			2	0			10	0			1	0			1	0	8	0			1	0	3	1			1	0									1	0	0	1	3	0	5	0
	CANADA																																												
71	Univ of Alberta Faculty of Med, Edmonton Alta							1	0															2	1											1	0							1	0
72	Univ of Manitoba Faculty of Med, Winnipeg Man							3	0	1	0																							1	0									5	0
73	Dalhousie University Faculty of Med, Halifax, N S																	1	0																	1	0			1	0				
74	Univ of Toronto Faculty of Med, Toronto, Ont.							4	0							2	0	0	1					6	2	2	0							1	0	1	0	2	0	1	1			1	0
75	Queen's University Faculty of Med, Kingston Ont							3	0							1	0							2	0									1	0	1	0			0	1			1	0
76	University of Western Ontario Faculty of Medicine London Ont																							1	0											1	0								
77	McGill University Faculty of Medicine, Montreal Que							6	1			1	0	2	0			3	0					1	0											3	0			0	1				
78	Univ of Montreal Faculty of Medicine Montreal, Que																																	0	1										
79	Laval University Faculty of Medicine, Quebec, Que.																																			1	0			1	0				
	OTHERS																																												
80	Foreign Medical Faculties							34	31	7	0	6	7			5	1	10	3					24	53					0	1					2	3	9	11	5	16			1	0
81	Extinct Medical Schools	0	1															3	2					1	1													1	0					2	0
82	Unapproved Medical Schools																	25	7	1	0			41	0							2	0							11	50				
83	Schools of Osteopathy									5	0	1	6													3	0													0	9				
84	TOTALS	47		22		52		549		78		44		21		31		327		113		39		434		102		57		100		86		165		29		189		133		161		181	
85	Totals—Examined—Passed	46		22		52		492		78		29		21		30		308		109		38		367		98		57		99		86		164		25		172		41		161		181	
86	Totals—Examined—Failed	1		0		0		57		0		15		0		1		19		4		1		67		4		0		1		0		1		4		17		92		0		0	
87	Percentage Failed	2.1		0.0		0.0		10.4		0.0		34.1		0.0		3.2		5.8		3.5		2.6		15.4		3.9		0.0		1.0		0.0		0.6		13.8		9.0		69.1		0.0		0	
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22	

P—Passed, F—Failed

and the Virgin Islands, the internship is a requirement for licensure In several of the states the candidate for medical licensure is permitted to take the written examination before completion of the internship and, if successful, the license is issued and dated on completion of the internship requirement Licenses are also withheld in some states for other technicalities As a rule the licenses of those examined in December are dated and issued in the following year The figures in table 1, therefore, include some physicians who were examined in 1948 and previous years Figures in this table will not correspond with those compilations which deal entirely with physicians examined for licensure in 1949

Likewise, the figures presented in this table, particularly in the endorsement column, do not necessarily represent individuals, but in some instances include persons who have been licensed in more than one state during 1949 In tables 12 and 14 (see pages 458 and 459) can be noted the number who secured their first license and represent additions to the medical profession in the United States, its territories and outlying possessions

Of the 12,181 licenses to practice medicine issued in 1949, the greatest number (1,511) were issued in California New York licensed the next greatest number 1,452 More than 500 physicians were registered in Illinois, Ohio and Pennsylvania The fewest, 17, were licensed in Wyoming

There was a decrease of 1,411 in the number of physicians licensed in 1949 as compared with the previous year, although the number of licenses granted exceeded the annual prewar registration by 3,000 or more The continuing decrease since 1946 when 16,236 physicians

23 Mississippi		24 Missouri		25 Montana		26 Nebraska		27 Nevada		28 New Hampshire		29 New Jersey		30 New Mexico		31 New York		32 North Carolina		33 North Dakota		34 Ohio		35 Oklahoma		36 Oregon		37 Pennsylvania		38 Rhode Island		39 South Carolina		40 South Dakota		41 Tennessee		42 Texas		43 Utah		44 Vermont		45 Virginia		46 Washington		47 West Virginia		48 Wisconsin		49 Wyoming		50 Alaska, Hawaii, Puerto Rico and Virgin Islands		Totals	Examined—Passed	Examined—Failed	Percentage—Failed	No. Boards Examined by	Marginal Number
P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F						
																3	0					77	0																																	94	94	0	0.0	7	47
2	0															5	2					62	0					4	0											1	0									2	0					83	81	2	2.4	9	48
																2	0					40	0					1	0																			2	0	1	0					60	60	0	0.0	8	49
		2	0											1	0	1	1							47	0			1	0	1	0							1	0																	63	62	1	1.6	12	50
		2	0	1	0																					33	1																			8	0			2	0					70	68	2	2.9	12	51
												11	0			2	2					1	0					54	1	1	0															1	0	1	0	2	0					118	109	9	7.6	21	52
1	0											11	0			5	2	6	0									90	0	2	0			1	0											1	0	1	0			1	0			148	145	3	2.0	23	53
								1	0			8	0			3	1			1	0							50	0					2	0					2	0	1	0			1	0	1	0	1	0			4	0	111	110	1	0.9	25	54
										1	0	5	0			6	0	4	0	1	0	2	0					53	1	1	0					1	0	1	0	2	0					2	0	1	0					1	0	105	103	2	1.9	24	55
												1	0			2	2											10	0	1	0															1	0							1	0	25	23	2	8.0	11	56
		1	0									1	0									5	0					68	0																			1	0	1	0					85	85	0	0.0	13	57
																																39	1													1	0			1	0					49	48	1	2.0	7	58
10	0											1	0			1	1											2	0							194	0	1	0									3	0					2	0	164	162	2	1.2	16	59
1	2	3	0									2	0			4	3	4	0									1	0			2	0			14	0							1	1											52	43	9	17.3	16	60
		1	0													3	1	1	0																	36	0																	1	0	49	48	1	2.0	6	61
2	0																											1	0									43	1																	51	50	1	2.0	7	62
																												1	0									52	1									1	0							62	61	1	1.6	5	63
																												1	0									53	0							2	0									60	59	1	1.7	6	64
																1	0					1	0			1	1	1	0					1	0					16	0					1	0									46	45	1	2.2	14	65
																0	1																									9	3							2	0			1	0	17	13	4	23.5	5	66
																		1	0																									40	0			2	0							60	60	0	0.0	8	67
																1	0	3	0																									54	1			16	0							83	82	1	1.2	7	68
								1	0			1	0									1	0			1	0	1	0																	2	0	1	0	36	0			4	0	68	67	1	1.5	17	69
		1	0									3	1	1	1	3	4					3	0			1	0	2	0					1	0			2	0							1	0	1	0	25	0			1	0	84	76	8	9.5	25	70
																																								1	0															7	6	1	14.3	5	71
																		1	0	7	0	2	0																							1	0									21	21	0	0.0	8	72
																																																1	0	1	0					5	5	0	0.0	5	73
		1	0													2	0					1	0					5	0															0	1	1	0									35	30	5	14.3	16	74
																2	1			2	0	1	0																																	16	14	2	12.5	10	75
1	0													1	0																																									4	4	0	0.0	4	76
										1	0					3	1	1	0			1	0					6	0													1	0							1	0					33	30	3	9.1	14	77
																4	2																																							7	4	3	42.9	2	78
										1	1					3	1											1	0													0	1					1	0					1	0	12	9	3	25.0	8	79
1	3	1	0							2	0	7	5	1	0	161	274			1	0	11	1	0	1			7	1	4	1					2	0	3	1					1	2	4	0							10	4	737	319	418	56.7	27	80
																												2	0																	2	0									15	11	4	26.7	7	81
								0	1							94	30					1	0																					3	0	1	0	2	0					3	1	282	184	98	34.7	12	82
						1	1					5	1			11	21					24	5															15	5											1	0					114	66	48	42.1	10	83
40		198		8		56		5		8		85		5		808		88		24		268		48		51		399		16		44		10		177		194		30		15		114		72		61		109		1		63		5,963					84
35		198		8		52		4		7		76		4		411		88		24		262		47		47		396		15		43		10		177		184		30		11		109		72		61		109		1		56			5,219				85
5		0		0		4		1		1		9		1		397		0		0		6		1		4		3		1		1		0		0		10		0		4		5		0		0		0		0		7				744			86
12.5		0.0		0.0		7.1		20.0		12.5		10.6		20.0		4.9		0.0		0.0		2.2		2.1		7.8		0.8		6.3		2.3		0.0		0.0		5.2		0.0		26.7		4.4		0.0		0.0		0.0		0.0		11.1					12.5		87
23		24		25		26		27		28		29		30		31		32		33		34		35		36		37		38		39		40		41		42		43		44		45		46		47		48		49		50							

were licensed indicates that the entry or return to medical practice of physicians who served in the armed forces during the war is nearing completion.

Totals of the physicians licensed for 14 previous years and for 1949 both by examination and reciprocity are included in table 3. The high figures for the years 1936 to 1941 were due to the licensure of foreign-trained physicians. In succeeding years the accelerated program in medical schools which produced 20,662 graduates in the three year period from June 1942 to June 1945 resulted in a noticeable increase the numbers annually licensed.

In the 15 year period 1935 to 1949, 155,935 medical licenses have been issued, 93 386 after written examination and 62,549 by reciprocity and endorsement of credentials.

Candidates Examined by Medical Examining Boards

Compilations referring to those examined in 1949 by individual states, the District of Columbia, Alaska, Hawaii, Puerto Rico and the Virgin Islands, indicating the number who passed and failed in each state, the medical school of graduation, the percentage of failures by schools and the number of states in which graduates of a given school were examined, are recorded in table 2. Medical schools in the United States which are no longer operating, faculties of medicine in countries other than the United States and Canada, unapproved medical schools and schools of osteopathy are not listed by name, but the numbers examined in each state in these four categories are included after the figures for existing medical schools in the United States and Canada.

During 1949 there were 5,963 applicants for licensure by written examination, of whom 5,219 passed and 744, or 12 5 per cent, failed The candidates examined represented 70 approved medical schools in the United States, 9 approved medical schools of Canada, six United States medical schools now extinct, 124 faculties of medicine and two licensing corporations of other countries, six unapproved medical schools in the United States and 10 schools of osteopathy Osteopaths who were granted the privilege to practice medicine, surgery or both by medical examining boards are included in these statistics *Osteopaths who obtain the legal right to special practice by the osteopathic board are not included in* these compilations

TABLE 3—*Licenses Issued, 1935-1949*

	Examination	Reciprocity and Endorsement	Total
1935	5,725	2,194	7,919
1936	6,276	2,773	9,049
1937	6,629	3,205	9,834
1938	6,557	2,956	9,518
1939	6,400	2,872	9,272
1940	6,289	2,866	9,155
1941	6 057	2,762	8,819
1942	6,152	2,469	8,621
1943	6,062	2,340	8,402
1944	7 080	2,596	9,676
1945	5,580	3,622	9,202
1946	6 567	3,669	10,236
1947	6 763	7,701	14,464
1948	5,997	7,595	13,592
1949	5 252	6,929	12,181
Totals	93,386	62 549	155,935

In recent years examinations and reciprocity meetings have been scheduled at frequent periods by many states to facilitate licensure and enable physicians to commence the practice of medicine without delay Later in this study there is included a tabulation giving the schedules of examinations and meetings for all states

The 5,963 examinees (table 4) represented 4,675 graduates of approved medical schools in the United States, of whom 3 2 per cent failed, 140 graduates of approved Canadian medical schools, 12 1 per cent of whom failed, 15 who graduated from medical schools in the United States which are now extinct of whom 26 7 per cent failed, 737 graduates of faculties of medicine located in countries other than the United States and Canada, of whom 56 7 per cent failed, 282 graduates of unapproved medical schools in the United States of whom 34 7 per cent failed, and 114 graduates of schools of osteopathy, of whom 42 1 per cent failed

TABLE 4—*Source of Candidates Examined for Licensure in the United States, 1949*

Medical Schools	Number of Schools	Number Examined	Number Passed	Number Failed	Percentage Failed
Approved in United States	70	4,675	4,516	159	3 2
Approved in Canada	9	140	123	17	12 1
Extinct	6	15	11	4	26 7
Foreign	126	737	319	418	56 7
Unapproved Schools	6	282	184	98	34 7
Schools of Osteopathy	10	114	66	48	42.1
Totals	227	5,963	5,219	744	12 5

As in table 1, the 5,963 physicians and others examined for medical licensure listed in table 2 do not represent an equal number of individuals, since some candidates took an examination in more than one state and have been counted in each state However, if a candidate failed more than once in a given state within the year he is counted in that state as only one failure Figures which show the number of individual licentiates added to the medical profession in 1949 are given in tables 12, 13 and 14

The greatest number of graduates from any one school examined was 181 from the University of Illinois College of Medicine, 90 of whom were examined in Illinois and 91 by 28 other state medical boards There were 164 graduates of the University of Tennessee College of Medicine examined in 16 states Boston University with eight examinees and Albany Medical College with nine examinees represented schools with the fewest number of applicants for medical licensure by written examination method before state boards The majority of the graduates of these two schools are licensed by endorsement of the certificate of the National Board of Medical Examiners

Twenty approved schools in the United States and Canada had no failures before medical licensing boards, 32 had less than 5 per cent, 14 had between 5 and 10 per cent, and 13 had 10 per cent or more failures in state examinations Failures from all existing approved schools in the United States amounted to 3 2 per cent The percentage of failures recorded by schools in table 6, which includes those who were examined by the National Board of Medical Examiners in its final examination as well as those passing state tests, presents a more accurate analysis of the quality of the graduates of these schools on the basis of their proficiency in examination tests

TABLE 5—*Graduates of Medical Schools in Canada Examined for Licensure in the United States, 1949*

	Examined	Passed	Failed
California	18	17	1
Colorado	1	1	0
Connecticut	1	1	0
Delaware	2	2	0
District of Columbia	3	3	0
Florida	5	4	1
Illinois	15	12	3
Indiana	2	2	0
Louisiana	4	3	1
Maine	9	9	0
Maryland	2	2	0
Massachusetts	6	3	3
Minnesota	8	8	0
Mississippi	1	1	0
Missouri	1	1	0
New Hampshire	3	2	1
New Mexico	1	1	0
New York	19	14	5
North Carolina	2	2	0
North Dakota	9	9	0
Ohio	5	5	0
Pennsylvania	12	12	0
Utah	1	1	0
Vermont	2	1	1
Virginia	1	0	1
Washington	2	2	0
West Virginia	2	2	0
Wisconsin	2	2	0
Puerto Rico	1	1	0
Totals	140	123	17

There were 140 graduates of nine approved medical schools in Canada tested for medical licensure in 1949 in 27 states, the District of Columbia and Puerto Rico 123 passed and 17, 12 1 per cent, failed

Figures for Canadian graduates are given for each licensing board by schools in table 2 and by totals in table 5 The majority of Canadians appeared before the boards in California, Illinois, New York and Pennsylvania Three Canadian schools had no failures before United States licensing boards, while the other schools had more than 9 per cent failures

Graduate of medical schools of other countries were examined by 27 boards There were 737 such graduates with 418 (56 7 per cent) failures

Graduates of the group of schools no longer in operation were examined in seven states, of whom 11 passed and 4 (26 7 per cent) failed

There were 282 graduates of unapproved medical schools examined in 12 states, of whom 184 passed and 98, 34 7 per cent, failed

One hundred and fourteen graduates of schools of osteopathy were examined by 10 medical examining boards with 42 1 per cent failures

Consolidated Examinations

A more accurate picture of the performance of graduates in licensure examinations than that revealed in the tabulations thus far presented is given by consolidating the results for the graduates of each school on state medical board examinations and on part III of the examination of the National Board of Medical Examiners The consolidated figures for individual schools are given in table 6 In this connection it should be noted that most of the failures in the National Board examinations occur in parts I and II as shown in tables 40 and 41 Only those candidates who have already passed parts I and II are eligible to take part III In 1949 there were 4,675 graduates of approved medical schools in the United States examined by medical licensing boards, of whom 3 2 per cent failed In the same period 1,647 graduates of these institutions appeared for part III of the examinations of the National Board, of whom 0 7 per cent failed In the consolidated figures for 6,322 graduates, the percentage of failures of graduates of approved medical schools in the United States was reduced from 3 2 per cent to 2 7 per cent No graduate of any approved school failed in more than one state in 1949 There were 10 graduates of foreign medical schools and one osteopath who failed in two states Of the failures among approved medical schools, 109 were graduates within the last five years and 67 were graduates of earlier years

Of the Canadian graduates, 12 1 per cent failed state board tests and 10 2 per cent failed the combined tests Only 11 graduates of foreign medical faculties were admitted to the National Board's final examination, while 737 were examined by state licensing boards There is no comparison to be made of this group There were none in the extinct medical school classification examined by the National Board The National Board does not admit to its examinations the graduates of unapproved medical schools or schools of osteopathy

The total of all examined before medical licensing boards as shown in table 6 was 5,963, of whom 5,219 passed and 744 12 5 per cent failed For both groups—state boards and the National Board—7,648 were examined, 6 893 passed and 755, 9 9 per cent failed The total percentage of failures was reduced 2 6 per cent

Failures in Medical Licensure Examinations

Failures before medical licensing boards by licentiates of 1949 are recorded in table 7 In presenting these statistics the United States is divided into two groups—the 31 states and the District of Columbia in which approved four year medical schools are located and the states, territories and possessions which have no four year medical school within their boundaries The figures include the number who failed state board examinations and were graduates of a medical school located in the state in which they were examined and also the number of graduates licensed in a given state who obtained their professional training in schools in other states

TABLE 6—*Consolidated Examinations State Medical Examining Boards and the National Board of Medical Examiners, 1949*

School	Results by Medical Examining Board Tests		Part III Examination of National Board of Medical Examiners		Total Examined	Totals		Percentage Failed
	P	F	P	F		P	F	
Medical College of Alabama	31	0	0	0	31	31	0	0.0
University of Arkansas	66	1	0	0	67	66	1	1.5
Coll of Med Evan (Calif)	103	7	29	1	140	132	8	5 7
Stanford University	58	2	4	0	62	60	2	3.2
University of California	70	1	2	0	73	72	1	1 4
Univ of Southern California	56	0	3	0	59	59	0	0 0
University of Colorado	64	1	4	0	69	68	1	1 4
Yale University (Connecticut)	12	0	48	0	60	60	0	0.0
George Washington University (D C)	30	1	75	2	108	105	3	2.8
Georgetown University	25	6	84	0	115	109	6	5.2
Howard University	56	4	5	0	65	61	4	6.2
Emory University (Georgia)	62	0	1	0	63	63	0	0 0
Medical College of Georgia	74	7	2	0	83	76	7	8 4
Stritch School of Medicine	69	4	11	0	84	80	4	4.8
Northwestern University	142	4	25	0	171	167	4	2.3
University of Chicago School of Medicine	65	1	10	0	76	75	1	1.3
University of Illinois	179	2	16	0	197	195	2	1 0
Indiana Univ School of Med	98	2	3	0	103	101	2	1.9
State University of Iowa	51	0	25	0	76	76	0	0 0
University of Kansas	103	2	2	0	107	105	2	1.9
University of Louisville (Ky)	103	2	13	0	118	116	2	1 7
Louisiana State University	61	1	0	0	62	61	1	1 6
Tulane Univ of Louisiana	119	0	4	0	123	123	0	0 0
Johns Hopkins University	83	2	14	0	99	97	2	2 0
University of Maryland	70	0	9	1	80	79	1	1.2
Boston University	8	0	59	0	67	67	0	0 0
Harvard Medical School	33	0	106	0	139	139	0	0 0
Tufts College Medical School	26	2	85	1	114	111	3	2 6
University of Michigan	109	3	42	0*	154	151	3	1.9
Wayne University	53	0	9	0	62	62	0	0.0
University of Minnesota	116	4	15	0	135	131	4	3 0
St Louis University	117	6	14	0	137	131	6	4 4
Washington University	91	0	6	0	97	97	0	0.0
Creighton University	40	4	8	0	52	48	4	7 7
University of Nebraska	54	4	11	0	69	65	4	5.8
Albany Medical College	9	0	39	0	48	48	0	0 0
Columbia University	35	3	91	0	129	126	3	2.3
Cornell University	38	2	63	1	104	101	3	2.9
Long Island Coll of Medicine	22	8	87	0	117	109	8	6.8
New York Medical College	14	4	112	1	131	126	5	3.8
New York University	25	6	109	0	140	134	6	4.3
Syracuse University	21	4	23	0	48	44	4	8.3
University of Buffalo	10	2	67	2	81	77	4	4.9
University of Rochester	31	3	47	0	81	78	3	3 7
Duke University	24	0	62	0	86	86	0	0 0
Bowman Gray School of Med	38	1	2	0	41	40	1	2 4
Ohio State University	60	0	1	0	61	61	0	0 0
University of Cincinnati	94	0	0	0	94	94	0	0 0
Western Reserve University	81	2	6	0	89	87	2	2 2
University of Oklahoma	62	1	2	0	65	64	1	1.5
University of Oregon	68	2	10	0	80	78	2	2.5
Hahnemann Med Coll Phila	109	9	22	1	141	131	10	7 1
Jefferson Medical College	145	3	11	0	159	156	3	1.9
Temple University	110	1	16	0	127	126	1	0.8
University of Pennsylvania	103	2	32	0	137	135	2	1.5
University of Pittsburgh	85	0	3	0	88	88	0	0 0
Woman s Medical College	23	2	11	0	36	34	2	5 6
Med Coll of South Carolina	48	1	2	0	51	50	1	2 0
Meharry Medical College	43	9	5	0	57	48	9	15 8
University of Tennessee	162	2	2	0	166	164	2	1 2
Vanderbilt University	48	1	6	0	55	54	1	1 8
Baylor University	59	1	3	0	63	62	1	1 6
Southwestern Medical College	50	1	0	0	51	50	1	2 0
University of Texas	61	1	2	0	64	63	1	1 6
University of Utah	45	1	7	0	53	52	1	1.9
University of Vermont	13	4	26	0	43	39	4	9.3
Medical College of Virginia	82	1	2	0	85	84	1	1.2
University of Virginia	60	0	1	0	61	61	0	0 0
Marquette University	76	8	18	1	103	94	9	8 7
University of Wisconsin	67	1	2	0	70	69	1	1 4
Subtotals U S Schools	4,516	150	1 636	11	6,322	6 152	170	2 7
University of Alberta	6	1	0	0	7	6	1	14.3
University of Manitoba	21	0	1	0	22	22	0	0 0
Dalhousie University	5	0	0	0	5	5	0	0 0
University of Toronto	30	5	4	0	39	34	5	12.8
Queen s University	14	2	3	0	19	17	2	10 5
Univ of Western Ontario	4	0	1	0	5	5	0	0 0
McGill University	30	3	18	0	51	48	3	5.9
University of Montreal ..	4	3	0	0	7	4	3	42.9
Laval University	9	3	0	0	12	9	3	25 0
Subtotals Canadian Schools	123	17	27	0	167	150	17	10 2
Foreign Medical Faculties	319	418	11	0	748	330	418	55.9
Extinct Medical Schools	11	4	0	0	15	11	4	26 7
Unapproved Schools	184	98	0	0	282	184	98	34 7
Schools of Osteopathy	66	48	0	0	114	66	48	42.1
Totals	5,219	744	1 674	11*	7 648	6,893	755	9.9

* Represents individuals failed

In general, state licensing boards require the applicant to receive a general average of 75 per cent and 60 per cent in any one subject In case of failure in not more than two subjects, the applicant is permitted a second examination in those subjects within 12 months A few states consider such persons as conditioned in the subjects in which they fail Conditioned candidates are not counted as failures in this study

TABLE 7—*Licensure Failures by Graduates of Existing Approved Schools Located in the States Where Examined and Elsewhere, 1949*

States with Four Year Medical Schools	Total No Examined	No Failures of Schools in State	No Schools in State Represented at Examinations	Per Cent Failed	No Failures or Schools Out of State	No Schools Out of State Represented at Examinations	Per Cent Failed	Per Cent Failed in All U S Schools
Alabama	46	0	1	0.0	0	13	0.0	0.0
Arkansas	52	0	1	0.0	0	1	0.0	0.0
California	484	10	4	2.1	16	53	3.3	5.4
Colorado	66	0	1	0.0	0	14	0.0	0.0
Connecticut	24	0	1	0.0	2	16	8.3	8.3
Dist of Columbia	25	0	3	0.0	0	8	0.0	0.0
Georgia	112	4	2	3.6	0	8	0.0	0.0
Illinois	314	3	4	0.9	10	49	3.2	4.1
Indiana	99	2	1	2.0	2	14	2.0	4.0
Iowa	57	0	1	0.0	0	8	0.0	0.0
Kansas	99	0	1	0.0	0	13	0.0	0.0
Kentucky	84	0	1	0.0	0	5	0.0	0.0
Louisiana	165	0	2	0.0	1	18	0.6	0.6
Maryland	168	0	2	0.0	6	22	3.6	3.6
Massachusetts	34	0	3	0.0	9	20	26.5	26.5
Michigan	164	0	2	0.0	0	23	0.0	0.0
Minnesota	181	0	1	0.0	0	39	0.0	0.0
Missouri	197	0	2	0.0	0	16	0.0	0.0
Nebraska	54	3	2	5.6	0	0	0.0	5.6
New York	217	27	9	12.4	45	40	20.7	33.1
North Carolina	88	0	2	0.0	0	25	0.0	0.0
Ohio	226	0	3	0.0	0	22	0.0	0.0
Oklahoma	47	0	1	0.0	0	0	0.0	0.0
Oregon	51	1	1	2.0	3	14	5.9	7.8
Pennsylvania	389	2	6	5.2	0	36	0.0	0.2
South Carolina	44	1	1	2.3	0	3	0.0	2.3
Tennessee	175	0	3	0.0	0	1	0.0	0.0
Texas	170	2	3	1.2	2	12	1.2	2.4
Utah	30	0	1	0.0	0	10	0.0	0.0
Vermont	15	3	1	20.0	1	8	6.7	26.7
Virginia	108	1	2	0.9	2	6	1.9	2.8
Wisconsin	108	0	2	0.0	0	25	0.0	0.0
Subtotals	4,093	59	70	1.5	99	537	2.4	3.9
States Without Four Year Medical Schools								
Arizona	22				0	16	0.0	
Delaware	21				0	14	0.0	
Florida	277				7	59	2.5	
Idaho	39				1	18	2.6	
Maine	24				1	14	4.2	
Mississippi	36				2	14	5.6	
Montana	8				0	10	0.0	
Nevada	4				0	4	0.0	
New Hampshire	6				1	5	16.7	
New Jersey	67				3	24	4.5	
New Mexico	4				1	3	25.0	
North Dakota	23				0	11	0.0	
Rhode Island	11				0	10	0.0	
South Dakota	10				0	6	0.0	
Washington	65				0	30	0.0	
West Virginia	59				0	32	0.0	
Wyoming	1				0	1	0.0	
Alaska, Hawaii Puerto Rico and Virgin Islands	45				2	25	4.4	
Subtotals	722				18	206	2.5	

The physicians who failed examinations in the state in which they obtained their professional training numbered 59 This occurred in 12 states New York reported 27 and California 10 Twelve states reported 99 failures among students who graduated from approved medical schools located in states other than the one in which they were licensed Again, New York had the greatest number, 45 Seventeen states had no failures in either group, eight states had failures in both groups

In the 17 states and the territories and possessions which do not have medical schools, eight reported 18 failures

Of the 4,815 graduates of approved medical schools in the United States and Canada examined for licensure in 1949, 176 failed

The data pertaining to licensure failures are further subdivided in table 8 by the number of candidates who were licensed after previously failing a licensing examination The figures are presented for four categories—approved medical schools in the United States and Canada, foreign faculties of medicine, unapproved medical schools and schools of osteopathy These groups are classified according to the number licensed after failing a state board examination once and after two or more failures The table further indicates whether the single and multiple failures have been in the state where licensed or elsewhere The total number of candidates licensed after examination or by endorsement of credentials is shown and also the total number of failures in all groups

Of the 12,181 licenses to practice medicine issued in 1949, 497 were granted to applicants who had previously been unsuccessful before a licensing board All physicians licensed in six states had no failures in a state medical examination

From the approved schools, 227 graduates had previously failed a state board examination Eighty-seven had one failure in the state in which they were licensed while 91 were licensed after one failure elsewhere Forty-nine received licenses after more than one failure

Of the group of foreign medical graduates, 196 were licensed after previous failure One hundred and six had more than one previous failure

Fifty-two graduates of unapproved medical schools and 32 graduates of schools of osteopathy failed a state board test before licensure

Twenty-two physicians had more than 10 failures before securing licensure One of these was a graduate of an approved medical school in the United States with 11 failures, eight were graduates of unapproved medical schools who had had previous failures ranging from 10 to 18, and 13 were graduates of foreign faculties of medicine who had more than 10 failures One foreign graduate had 20 failures before finally securing licensure and another 26 failures A few of the states have no restrictions on the number of examinations which may be taken prior to licensure but most states have a set limit of three examinations

Registration by Reciprocity and Endorsement

The reciprocity and endorsement policies in medical licensure in the United States, Alaska, Hawaii and Puerto Rico are summarized in table 9 Florida is the only state which requires all applicants for licensure to pass a written examination Hawaii does not have reciprocal relations with any state but will endorse physicians certified by the National Board of Medical Examiners Those desiring licensure by reciprocity or endorsement in 16 states, the District of Columbia and Alaska are required to obtain a certificate from the state board of examiners in the basic sciences before being eligible for medical licensure In the section in these statistics pertaining to basic science boards there is included a table indicating the reciprocity, endorsement, exemption or waiver policies of the basic science boards

Thirty states, Alaska and Puerto Rico have definite reciprocal agreements with specific states Indiana recently cancelled reciprocal agreements and will in the future consider all persons applying for licensure without examination on an individual basis Fifteen of these states and Puerto Rico, and 19 others are given discretionary powers to endorse applicants from nonreciprocating states who present credentials which correspond with those required by their respective boards in the year issued

This chart will be available in reprint form It is helpful to physicians who are considering a change in location The facts recorded in this table are intended to present merely general statements of licensure policies The information here given should be supplemented by direct communication with the licensing board A list of the executive officers in charge of medical licensure appears elsewhere in this study

TABLE 8—*Failures Before Medical Licensing Boards by Licentiates 1949*

	Licenses Issued by Examination Reciprocity or Endorsement	Approved Schools					Foreign Schools					Unapproved Medical Schools					Schools of Osteopathy					Total Failures by Licentiates 1949
		Licensed After One Failure		Licensed After Two or More Failures			Licensed After One Failure		Licensed After Two or More Failures			Licensed After One Failure		Licensed After Two or More Failures			Licensed After One Failure		Licensed After Two or More Failures			
		Failed in State Where Licensed	Elsewhere	Failed in State Where Licensed	Elsewhere	Failed in State Where Licensed and Elsewhere	Failed in State Where Licensed	Elsewhere	Failed in State Where Licensed	Elsewhere	Failed in State Where Licensed and Elsewhere	Failed in State Where Licensed	Elsewhere	Failed in State Where Licensed	Elsewhere	Failed in State Where Licensed and Elsewhere	Failed in State Where Licensed	Elsewhere	Failed in State Where Licensed	Elsewhere	Failed in State Where Licensed and Elsewhere	
Alabama	104		1																			1
Arizona	99		1					1														2
Arkansas	91																					0
California	1,511	10	16	1	6		3	1	2	1												40
Colorado	161		3					1		2												6
Connecticut	229	2	2	1				1	1													7
Delaware	31							1														1
District of Columbia	227	1						2		3												6
Florida	325	8	4		1		1	1			1	3	5		2	2						28
Georgia	179				1																	1
Idaho	52																					0
Illinois	590	5	3		1		10	1	4			1										25
Indiana	237		3														1			1		5
Iowa	196		1					1														2
Kansas	185		1																			1
Kentucky	158		3																			3
Louisiana	250		2		1																	3
Maine	69	1	3					1			2											7
Maryland	501	1	2		1		1	1		1												7
Massachusetts	380	1	4	1			1					4		5		1						17
Michigan	411		3		2																	5
Minnesota	312		2																			2
Mississippi	95		1				1															2
Missouri	316		1																			1
Montana	44																					0
Nebraska	99	5	4	1															1			11
Nevada	30																					0
New Hampshire	73	1								1												2
New Jersey	346	2	3	1	2			5	1	12	3						1		1			31
New Mexico	48	1																				1
New York	1 452	38	4	17			47	1	53	2	7	11	4	3		5	3		3		1	199
North Carolina	216		1		3	1		1														6
North Dakota	48		1																			1
Ohio	568		3					4		5	1						6					19
Oklahoma	131				1																	1
Oregon	150		1																			1
Pennsylvania	644	6	5		3																	14
Rhode Island	40				1			1		1												3
South Carolina	83	1																				1
South Dakota	39		1																			1
Tennessee	218		2		1								1									4
Texas	437	2	2		1			1			1						3	1				11
Utah	69																					0
Vermont	48		4																			4
Virginia	233	1			1					1			1		1	1						6
Washington	224		1										1									2
West Virginia	114		2																			2
Wisconsin	195		1																			1
Wyoming	17																					0
Alaska Hawaii Puerto Rico and Virgin Islands	97	1					1		1						1							4
Totals	10 181	87	91	22	26	1	65	25	62	29	15	19	12	8	4	9	14	1	5	1	1	497

There is also included in this table a column indicating the recognition accorded the certificate of the National Board of Medical Examiners All states but Florida, Montana and Wisconsin accept the National Board's certificate

Specific requirements, such as professional practice, citizenship, oral examination and internship are recorded as is also the fee for a license without written examination In some states physicians of Canadian birth are exempt from the citizenship requirement This is indicated by footnote Few states will accept graduates of foreign faculties of medicine on a reciprocal basis Additional requisites or exemptions are included in footnotes

Table 20 (page 461) contains a schedule indicating when the boards will issue licenses by reciprocity

The credentials presented by physicians granted licenses to practice medicine without written examination are given in table 10 There were 6,929 so registered on the basis of licenses from other states, the District of Columbia, territories or possessions of the United States, foreign countries, the certificate of the National Board of Medical Examiners, by special exemption and by acceptance of service with an agency of the government of the United States In recent years the number securing licenses by this method has been increasing although the figures for 1949 showed a decrease in comparison with the preceding year

New York issued the greatest number of licenses by this method In this state 1,041 were registered California licensed 1,027 Figures for other states were fewer than 325 Nine states licensed more than 200

The largest number of candidates who presented the same type of credential were the 2,536 diplomates certified by the National Board of Medical Examiners On the basis of the certificate of the National Board 756 were licensed in New York, 273 in Massachusetts and 215 in California

More than 300 presented licenses for reciprocal registration in the various states from Illinois, New York and Pennsylvania No physician holding a Wyoming license applied for registration in another state during 1949 and only two from Nevada and New Mexico

One hundred and three medical officers of one of the government services received licenses by endorsement of their military credentials in eight states Eleven physicians were licensed in three states on the basis of a license issued in one of the territories or possessions of the United States, 68 on the basis of Canadian or foreign licenses and 26 by special exemption

Table 11 records the numbers from individual schools represented by the 6,929 reciprocity licentiates

TABLE 9 —*Reciprocity and Endorsement*

		Reciprocates with, or Endorses Certificates Granted by																														
Marginal Number	The Examining Board of	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist of Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	Marginal Number
1	Alabama			+	+	+		+	+		+		+	+	+	+	+	+	+	+		+	+	+	+	+	+	+		+	+	1
2	Arizona																															2
3	Arkansas (regular board)	+	+		+	+	+		+		+		+	+	+	+	+	+	+	+		+	+	+	+		+	+		+	+	3
4	California																															4
5	Colorado																															5
6	Connecticut (reg & homeo bds)								+			+		+		+		+	+	+	+	+							+			6
7	Delaware (regular board)																															7
8	District of Columbia																															8
9	Florida	No reciprocity or endorsement policies																														9
10	Georgia	+		+	+	+			+					+	+	+	+	+	+	+		+	+	+	+		+	+	+	+	+	10
11	Idaho																															11
12	Illinois	+		+	+	+								+	+	+	+	+	+	+		+		+	+		+	+		+		12
13	Indiana																															13
14	Iowa	+		+	+	+		+	+		+		+	+		+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	14
15	Kansas	+	+	+[10]	+		+	+	+		+		+	+	+		+	+	+	+		+		+	+	+	+	+	+	+	+	15
16	Kentucky	+		+	+	+		+	+		+		+	+	+	+		+	+	+		+	+	+	+	+	+	+	+	+	+	16
17	Louisiana (reg & homeo bds)	+	+	+	+	+	+	+	+		+		+	+	+	+	+		+	+	+	+	+	+	+		+	+	+	+	+	17
18	Maine			+	+	+		+	+		+		+	+	+	+	+	+		+		+	+		+	+	+	+		+	+	18
19	Maryland (reg & homeo bds)	+		+	+		+		+		+	+	+	+	+	+	+	+	+		+	+		+	+	+	+	+	+	+	+	19
20	Massachusetts																															20
21	Michigan	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	21
22	Minnesota	+	+	+	+	+	+	+			+				+		+	+	+		+	+		+	+	+	+	+	+	+	+	22
23	Mississippi	+	+	+	+	+	+	+	+		+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	23
24	Missouri	+		+	+						+	+	+	+	+	+	+	+	+	+		+	+	+			+	+				24
25	Montana																															25
26	Nebraska	+	+	+	+	+	+	+	+		+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	26
27	Nevada	+		+	+	+					+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+		+		-	27
28	New Hampshire																															28
29	New Jersey	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	29
30	New Mexico	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		30
31	New York																															31
32	North Carolina																															32
33	North Dakota	+		+	+	+					+		+	+	+	+	+	+	+			+			+	+	+	+	+	+	+	33
34	Ohio	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	34
35	Oklahoma																															35
36	Oregon																															36
37	Pennsylvania	+	+	+	+	+	+	+		+	+	+	+	+	+		+	+	+	+		+	+	+	+	+	+	+	+	+		37
38	Rhode Island						+[11]					+[14]		+[14]															+[11]			38
39	South Carolina	+							+		+					+	+	+	+	+		+		+	+		+		+	+		39
40	South Dakota	+	+	+	+	+					+			+	+	+	+	+				+	+	+		+	+	+			+	40
41	Tennessee	+	+	+	+	+	+	+	+		+		+	+	+	+	+	+	+	+		+	+	+	+	+	+		+	+	+	41
42	Texas																															42
43	Utah	+	+	+	+	+	+	+		+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	43
44	Vermont																															44
45	Virginia	+		+	+			+	+		+			+	+	+	+	+	+	+		+	+	+		+			+	+	+	45
46	Washington	+			+	+					+			+	+		+	+		+		+	+	+	+	+	+					46
47	West Virginia	+		+	38	38	+	+	+		+		+	+	+	+	+	+	+	+	38	+	+	+	+	+	+	+		+		47
48	Wisconsin	+	+	+	+	+	+	+	+		+		+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	48
49	Wyoming																															49
50	Alaska	+		+	+	+	+		+					+		+	+			+		+	+	+	+			+	+	+		50
51	Hawaii	No reciprocal relations																														51
52	Puerto Rico								+											+		+					+					52

This summary should be supplemented by direct communication with the

Some states have additional requirements for graduates of schools outside the United States and Canada

+, indicates reciprocal or endorsement relationships have been established, indicates no reciprocal or endorsement relationships have been established (See column—"At the discretion of the board")

1 1st P, first papers required ⊕, in citizenship column indicates full citizenship required, in other columns it implies a requirement.

2 In most cases there is a small additional recording or registration fee

3 Year of practice after internship required

4 Internship accepted in lieu of one year s practice

5 Professional practice required

6 All applicants must be graduates of a medical school approved by the American Medical Association

7 Just preceding application

8 No basic science reciprocity—examination must be within the state

9 Basic science certificate required either by reciprocity or examination in addition to basic science subjects of National Board

10 Canadian citizens are required to file first papers

11 Not applicable to citizens of Canada

12 Oral examination required when original license is ten or more years old

13 Applicant must have resided in the state used as basis of application for one year after date on said certificate, or show two years of licensed practice in some other state

14 Oral examination required

15 Graduates of foreign medical schools must have fulfilled all requirements of California prior to admittance to examination for any certificate used as basis of application to California

16 Actual practice for a period of three years immediately preceding date of application

17 Practical, clinical examination required.

18 Foreign graduates only

19 Regular and Homeopathic boards

Every approved medical school in the United States and Canada had graduates licensed without examination in 1949. More than 200 graduates of four schools secured such licensure. The wide use of licensure by this method can be noted by an examination of this table which reflects the movement of physicians to states other than the one in which they were originally licensed.

Policies of Medical Licensing Boards

Marginal Number	Reciprocates with or Endorses Certificates Granted by																							Requirements						
	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	Alaska	Puerto Rico	At the Discretion of the Board	National Board of Medical Examiners	Basic Science Certificate	Internship	Professional Practice	Citizenship[1]	Fees Dollars	Miscellaneous	Marginal Number
1	+	+	+	+	+	+	+		+	+	+	+		+	+	+	+	+	+	+		+	+		⊕	1[4]	⊕[11]	50		1
2																						+	+	⊕[5]	⊕	3[4,7]	⊕	100	42	2
3	+	+	+	+	+	+	+		+	+	+			+	+		+	+	+	+			+[9]	⊕		1[4]	⊕	50[22]	42	3
4																						+	+		41	1[12]	⊕[21]	100	12 15	4
5																						+[43]	+[9]	⊕		1[4]	1st P	50	42	5
6				+			+	+			+			+								+	+[27]	⊕[19]		3[16]	1st P	50		6
7																						+	+[5]		⊕	2	⊕	100		7
8																						+	+[27]	⊕	⊕	1[8]		50		8
9																								⊕			⊕			9
10		+	+	+	+	+			+	+	+	+	+	+	+	+	+	+					+			0	⊕	50		10
11																						+	+		⊕		⊕	100		11
12		+	+	+	+	+	+				+	+	+	+	+	+	+	+	+	+			+[17]		⊕	1	1st P	25	17 42	12
13																						+	+			1[4]		50		13
14		+	+	+	+		+			+	+		+		+	+	+	+	+				+	⊕	⊕	1[4]	⊕[11]	50		14
15		+	+	+	+		+		+	+	+	+	+	+	+		+	+	+	+			+			1[4,7]	⊕	31	42	15
16			+	+	+		+		+	+	+	+	+	+	+	+	+	+					+			1[4]	⊕	50	42	16
17	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+				+[25]		33	1[4]	1st P[40,10]	50[22]	42	17
18			+	+	+	+	+		+		+	+	+	+	+		+	+	+				+[14]			1[4]	⊕[11]	50		18
19	+	+		+	+	+	+		+		+	+		+	+		+	+		+		+	+			1[4]	1st P	50	42	19
20																						+	+			0	1st P	50[28]		20
21	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+[35]	⊕[37]	⊕	1[4]		55	34	21
22	+	+		+	+	+	+			+	+		+	+	+	+	+	+	+	+		+	+	⊕		0	⊕[11]	75	17 42	22
23	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+	+		+	+				⊕[11]	50	42 11	23
24			+	+							+		+			+	+	+		+		+	+[39]		⊕[32]	1[4]	⊕	50		24
25																						+			⊕	1[4]	⊕	75	42	25
26	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+	+			+[28]	⊕		1[4]	⊕	50		26
27	+			+	+	+	+			+	+		+	+		+	+	+		+			+		⊕	1[4]	1st P	200	14 42	27
28																						+	+		⊕	0	⊕[11]	20		28
29	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+		⊕	0	⊕	100		29
30	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	⊕	⊕	1[4]	1st P	50		30
31																						+	+			2	1st P	25		31
32																						+	+			0		50	42 6	32
33		+		+	+	+	+			+		+	+	+	+	+	+	+	+	+			+		⊕	1	⊕	50[22]	14 42	33
34	+	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+			1[4]	⊕	50		34
35																						+	+	⊕[32]	⊕	1[4]	⊕	100	42 11 6	3
36	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+			+[20,23]	+[9,27]	⊕	⊕	1[4]	⊕	100		36
37																						+	+		⊕	2[24]	1st P	50	42	37
38														+[14]		+[14]						+[14]	+[14]	⊕	⊕	0	1st P	20		38
39		+		+	+	+	+				+	+			+	+	+	+	+				+[14]			1[4]	⊕	50	42	39
40		+	+	+	+	+			+		+		+	+	+	+	+	+	+				+	⊕	⊕	1	1st P	50	42	40
41	+	+		+	+		+		+	+		+	+		+	+	+	+	+				+[30]	⊕		0	⊕	50	42	41
42																						+	+	⊕		0	⊕	25		42
43	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+			+	+		⊕	[31]		50	42	43
44																						+	+[38]		⊕	1[3]	⊕	50		44
45		+		+	+		+		+	+	+	+		+		+	+	+				+	+		⊕[18]	2[26]	1st P[11]	50		45
46				+	+	+	+			+	+		+	+	+			+		+			+[8]	⊕[8]	⊕	0		25		46
47		+	+	+	+	+	+		+	+	+	+	+	+	+			+	+	+			+		⊕	0	⊕	100		47
48	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+		+		+	+[14]		⊕	⊕	1[9]	1st P	50[22]	42	48
49																						+[4]	+[14]		⊕	0	⊕	50		49
50		+	+	+	+	+					+	+	+	+	+	+	+	+					+	⊕	⊕	0	⊕	100	6	50
51																							+		⊕		⊕	25	42 6	51
52	+		+				+		+									+				+[3]	+		⊕	1[3]	⊕	30		52

secretary of the licensing board of the state in which the physician is interested

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20 Reciprocity is extended to all states which accept Oregon licentiates on reciprocity basis

21 Not required if country in which applicant is licensed will admit to practice citizens of the United States licensed to practice in some state or on proof of requirements similar to those required by California of graduates of foreign medical schools

22 Fee same as applicant's state charges if more than $50

23 Oral examination required if applicant's state requires it

24 If the applicant passes the examination in the state from which he transfers after the completion of his internship no practice is required

25 License in state with which Louisiana reciprocates required

26 Internship accepted—considered equivalent to two years practice

27 Fee $25

28 Fee for license on basis of National Board certificate $25

29 A two year internship is accepted

30 Diplomates of National Board not required to have been in practice for three years

31 Same as required of candidates of state applying for licensure

32 Not required for licensure by reciprocity

33 Reciprocity applicants only

34 Supplemental examination required in certain cases when accepting the examination of a state with whom reciprocal relations have not been established

35 May be licensed after a special (written) supplemental examination

36 Fee $50

37 For matriculants after Oct 15 1937

38 Licentiates of California Colorado and Massachusetts accepted on reciprocal basis at discretion of board

39 Fee $15

40 Permanent license withheld until completion of citizenship

41 Graduates of foreign medical schools effective Sept 15 1935 Canadian schools exempted effective Sept 19 1939

42 Graduates of foreign medical schools are not accepted

One hundred and fifty-two foreign trained physicians obtained licenses by reciprocity or endorsement in 22 states and the territories and outlying possessions and *107 graduates of medical schools no longer in operation* were registered by 31 states. Seven graduates of unapproved medical schools secured licenses in four states, while 32 graduates of schools of osteopathy were registered in 11 states to practice medicine or surgery or both. There are 731 persons represented in these four groups.

Licentiates Representing Additions To The Medical Profession

Figures for the number of physicians who received their first license to practice medicine and surgery in 1949 and who thus represent additions to the medical profession in the United States and its territories and

TABLE 10—*Candidates Licensed by Reciprocity and Endorsement of Credentials, 1949*

		Source of Former License or Credentials																																																						
Marginal Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
State Issuing License by Reciprocity or Endorsement	Total Licensed	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist of Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	U S Govt Services	National Board of Medical Examiners	U S Terr and Possessions	Canadian, Foreign	Special Exemption
Alabama	88			3							7		3		3	1	2	17		2		1	2	1	6					1		2	4		2			1		2		10	2			2						8			
Arizona	77			2	3	1	1		1			1	6	2	2	1				3		8	4				5			2		4	1		4	1	1	3	2				1				1		2			14		1	
Arkansas	39				1								3		1	2		5		1		3	1		1		1			1					3	1						11										3		1	
California	1,027		2	6		10	2			3	7	1	138	20	20	20	11	16		27	2	46	60	5	34	2	4	2		11		69	8	3	47	10	8	54		1	2	13	11	4	1	5	16	2	30		37	215	5		
Colorado	83				1				1		1		10	2	2	1	1					4	11		3	1	13					2				4		2			1	1	1						4			17			
Connecticut	197				2								4	1	1		1	2	1	2	1	2	2		1	1	1		2	2		21			4	1		6	1			5			2	1			2			128			
Delaware	10																			1										3		3						3																	
Dist of Columbia	197			4	3								2	3		1	1	1	2	19				1	3					1		7	5		3			15		1		5	3			11						102	3	1	
Florida	0																																																						
Georgia	70	1			3								2	3		1		7	2	5		3	3	2	1					1			1		1	1		5		2		9	2			5						10			
Idaho	15																																																			15			
Illinois	220		1	3	7	4								9	7	2	3			3		12			26		4						1	1	13	4	1	13				4	4	1		1		2	10		1	77			
Indiana	129			2	2	1							24		3	4	9	3		2		9			7		5					7			20	4		7				3	5			4	1		6			11			
Iowa	132				3	2	1						16			6	3	1	1		1	1	11		7		18					3			8			2				5	1			1	1		6			23			1
Kansas	86			4	2		1				2		7	4	1		1	3				2		2	5		5			1			1		5	2		5			1	4	5						3			20			
Kentucky	72	1		1		1					1		6	7	2			4	1	2		1			1							1	1		7			5				11	2			3					1	13			
Louisiana	80	3		4	4	1					3		3	4			2			2		2	1	6	4					1		11	1			1		2				12	11			4	1	1	1						
Maine	44						1						4			3				2															3								1		2		1					27			
Maryland	123			2	3			1	11				2				2	4			1	3			2					4		14	2		1	1		14				2	2			6	1					45			
Massachusetts	319	1		1			3										1	2		3			1		1				1	4		2	2		6			10		2					6							273			
Michigan	215				9						1		14	13	7	4	2	4	1	11			15	1	9		3			2		6	4		28	3	1	16			1	6	3		2	6	1	1	7			34			
Minnesota	128	2	1		3	5								1	2		2	1				8			7		6			1		1	1		3	3		4				2				4	1		6			64			
Mississippi	61	1		2	2						2		3				1	13									1			1		1						4		1		13	1	1					1			4		9	
Missouri	122			2	2				1				10	1	4	22	4	1				5	1	1		1	7				1	1	1		1	3		2				8	2			3	1		7			30			
Montana	36			1	3	1							5	1						1		5	3		2		1			1		2		1	3			2				1							3						
Nebraska	47				4	2							3		10	4				1			3		3							3			5			2			1	1										5			
Nevada	26	1			7								3		1	1	1			1			1		1													3										1				5			
New Hampshire	66						1						2						5	2	4	2			1							3	1		1			3				1			3							34		3	
New Jersey	270				1		1	2					5	4		3	3	3	3	16	1	1	2		3							60	2		7	1		30				5	1		1	3		1	3			102			
New Mexico	44					1							3	1	1	1		4			1	1	2	1	1		1					3			3	1		2		1			7			1	1		1			5		1	
New York	1 041	2		1	12	5			3		2		2	5	7		3	15		34	7	17	5				1			6			4		7			37				1	8		5	9	2		12			750	3	48	22
North Carolina	128			1	6	1					5		1	2		1		1	1	8	1	4		1	2					2		5			2			6		9		6	3			14	2	2				42			
North Dakota	24			1	1								3			1				1		4											1		3			1											1			4		2	1
Ohio	278			3	4		2		2		1		15	11	10	2	10	1	3	11	1	19	5		25		3			4		22	3			2		22		1	1	9	1		2	7		6	1			69			
Oklahoma	61			1	4	1			1				2		2	7	1	5		1		2	1		3		2				1			1	3			2				5	4			1						11			
Oregon	103			1	6	3							7	2	6					3		5	16		10		3			1					2	1					1						2		7			27			
Pennsylvania	247				6	1	1	2	6		4		5	1	1	1	5		3	10	2	4	3		7		3		1	16		19	3	1	15	1			2		1	4	1		1	5		1	1		1	107			2
Rhode Island	25						1																						1																1							22			
South Carolina	40			1					1		6					1	1			2				1								2	2					2				3	2			4		1				11			
South Dakota	29				1	1								1	3	1	3						6				1								3											1			2			6			
Tennessee	78			1	2			1	1		12		4	1		1	4	2		1			2	8	3				1	1		3	1		3			3								8						14		1	
Texas	292	3		3	14		1	1			4		28	18	9	4	8	36		9	1	4	1	3	21		7			2		10	2		14	14		12		2		15		1		3		1	5		6	30			
Utah	38				5							1	1	1		1			1	2		1			4	1	2					1						2					1			1					1	12			
Vermont	34						1																									8														1						23		1	
Virginia	123	1			1				6		2		2			1	3		1	8	1	2	1	3	6		1			3		6	8		7	4		4		2	1	10					1	4			3	31			
Washington	153	1			12	1					2			1	6		2	1		5		6	17		10	1									6		12	5				1		4	1	5			2			43			
West Virginia	53				2						2		5		1	1	1	2	1	2		1	1												5			3					1			13			1			11			
Wisconsin	80												16			1				1		4	2	1	1										4			2								1					53				
Wyoming	16				1					1			3						1				1			1	3								1								1						1			2			
Alaska Hawaii Puerto Rico and Virgin Islands	41				1												1			1			1		3		2					3	1					3									3		1			21			
Totals	6 920	17	4	50	143	42	17	7	34	4	64	3	372	128	112	100	92	151	27	205	24	192	185	36	233	8	133	2	6	72	2	305	59	7	253	65	23	325	5	24	10	192	87	11	27	133	36	23	132	0	103	2 526	11	63	26
Marginal Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55

possessions are presented in tables 12 and 13 Included in these compilations are figures pertaining to candidates examined and licensed in 1949, figures for some who were examined in previous years but whose licenses were not issued until 1949 because of the lack of the required internship, citizenship or other technicalities, and figures for physicians not previously licensed in any state who were certified in earlier years by the National Board of Medical Examiners The figures also include physicians licensed on the basis of governmental credentials, Canadian and foreign licenses The majority represent recent graduates

These official figures indicate that last year 5,866 individuals were added to the physician population in this country, Alaska, Hawaii and Puerto Rico In 1949 there were 3,600 deaths of physicians reported to the offices of the American Medical Association Deducting this figure from the number licensed in 1949 for the first time reveals that the net increase in the number of physicians in the United States and its territories and possessions was 2,266 This figure represents a decrease of 760 in comparison with the net increase in 1948

The greatest number of physicians licensed for the first time in any one state was 973 in New York California had more than 500 first licentiates and Pennsylvania more than 400 Increases over 1948 were reported by Arizona, Idaho, Kansas, Kentucky, Maryland, Mississippi, Ohio and Oregon

The 5,866 first licentiates in 1949 consisted of 4,250 who were registered after a written examination and 1,616 by endorsement of credentials The majority of the latter were diplomates certified by the National Board of Medical Examiners

Table 13 presents the same figures as those in table 12 for nine geographic divisions The East North Central and Middle Atlantic group of states had the greatest number of first licentiates 1,027 and 1,524 respectively More than 600 were reported by the West North Central and South Atlantic and Pacific states The West South Central states reported 414, the East South Central states 290, the Mountain group 155 and the New England states 453 The territories and possessions added 30

In the past 15 years (1935-1949) there have been 93,074 physicians added to the medical profession Figures for each year during this period are shown in table 14 and indicate that 80,932 were licensed after examination and 12,142 by endorsement of credentials The total number of licenses issued in the same period was 155,935

The American Medical Directory, Volume 18, which will be ready for distribution in June lists the total number of physicians in continental United States as 201 277 This total 201,277 includes all licensed physicians including those in private practice, those in full time research teaching and administration, those in government services, those who have retired, and interns and residents It is estimated that 151,267 physicians are in private practice

Premedical Training

Since 1918 the minimum requirement of the Council on Medical Education and Hospitals of the American Medical Association and the Association of American Medical Colleges has been two years of college training In 1938 both these agencies recommended that at least three years of college work be required of all candidates for admission All state licensing boards with the exception of California (table 15) require that an applicant for licensure must present evidence of having completed two years of college Seventy-three medical and basic science schools of the United States and four Canadian medical schools require three or more years of premedical work Six schools require a bachelor's degree One of these latter schools requires only 90 semester hours of college work from veterans and two of these schools will accept students with three years of college work, provided their colleges will grant them a bachelor's degree on the successful completion of the first year in medical school

Required Internships

The medical schools that require their students to serve an internship are shown in table 16 Seven schools in the United States and three in Canada have this requirement All except one of these schools withholds the M D degree until the year of internship has been served Duke issues the degree at the end of the four year medical course, but obtains from each student a written agreement that he will spend two years in training in a hospital or laboratory Several of the other schools requiring an internship will accept a year of laboratory work in lieu of an internship

States requiring an internship for licensure are listed in table 17 Twenty-three states have this requirement In addition, the District of Columbia, Alaska Hawaii, Puerto Rico, the Virgin Islands and the Canal Zone require a year of internship for licensure Eleven states, the Canal Zone, Hawaii and Puerto Rico require the internship to be a rotating service Idaho specifies the internship should be a straight service

Some states in addition to those listed in table 17 require an internship of foreign-trained physicians and of applicants for reciprocity or endorsement

Licensure Requirements for Interns and Residents

Two states and Puerto Rico report that physicians serving internships must be licensed Georgia and Nevada have this requirement Limited registration is required in Massachusetts Two states permit an intern service of two years without licensure and one state three years of internship without licensure

The legal requirements for physicians engaged in residency training varies Twenty-two states, Alaska the Canal Zone, Hawaii and the Virgin Islands do not require licensure California will permit a physician to begin a residency before licensure One state permits a service of two years and another a three year service before licensure

The requirements for each state are given in table 18

Professional Educational Requirements of Licensing Boards

The medical practice acts or board regulations of several state medical boards specify the length of the medical school academic year in terms of hours, weeks or months as well as the total time in hours, weeks or months which must be spent in medical school In other states the law or ruling reads that the professional educational requirement accepted for approval by the Council on Medical Education and Hospitals of the American Medical Association or for membership in the Association of American Medical Colleges is the regulation for licensure Table 19 outlines the requirement of each state in this respect This table does not record the internship which is a requirement for licensure by 29 boards

Table 11 —*Candidates Licensed by Reciprocity*

Marginal Number	SCHOOL	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist of Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland
	SOUTH CAROLINA																			
58	Medical College of the State of South Carolina Charleston	1			3	1			1		2									
	TENNESSEE																			
59	University of Tennessee College of Medicine, Memphis	7		6	10	1	2				5		1	1	3	2	5	12		
60	Meharry Medical College Nashville	1		2	8	1	2		3		1		3	1	2	2				1
61	Vanderbilt University School of Medicine, Nashville	7		3	4	1			3		5		2		2	1	6	3		[illegible]
	TEXAS																			
62	Southwestern Medical School of the Univ of Texas Dallas		1												1	1		4		1
63	University of Texas School of Medicine, Galveston				2	2			3		2		3	2		2	1	3	1	1
64	Baylor University College of Medicine, Houston				7	1							1	3		1	1	3		
	UTAH																			
65	University of Utah School of Medicine, Salt Lake City				2															
	VERMONT																			
66	University of Vermont College of Medicine, Burlington				3		5		2				2						2	
	VIRGINIA																			
67	University of Virginia Department of Med , Charlottesville	2			4		1		5		4		1	1	1		2	3		
68	Medical College of Virginia, Richmond			1	5		1	1	4		2			3			1	1		6
	WISCONSIN																			
69	University of Wisconsin Medical School, Madison	1	2		15	2	2		1				4	2	3	1		2		
70	Marquette University School of Medicine, Milwaukee				13	3	1		2				7	1	2					
	CANADA																			
71	University of Alberta Faculty of Medicine, Edmonton Alta																			
72	University of Manitoba Faculty of Med , Winnipeg, Man				8															
73	Dalhousie University Faculty of Medicine Halifax, N S																			
74	University of Toronto Faculty of Medicine, Toronto 5, Ont		1	1	8		2							1						
75	Queen's University Faculty of Medicine, Kingston, Ont																			
76	Univ of Western Ontario Faculty of Med , London, Ont				2										1					
77	McGill University Faculty of Medicine, Montreal, Que				5		4						1			1				
78	University of Montreal Faculty of Medicine, Montreal Que																			
79	Laval University Faculty of Medicine, Quebec Que																1			
	OTHERS																			
80	Foreign Medical Faculties		1		3		8	1	10		1			1	3				1	
81	Extinct Medical Schools	2	1		39	2			1		1		5	4	3	2	2		1	4
82	Unapproved Medical Schools		1								3								2	
83	Schools of Osteopathy							1	1					1						
84	TOTALS	88	77	39	1,027	83	107	10	107		70	15	220	139	132	80	72	86	44	123
	Marginal Numbers	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

Approval of Medical Schools

Eight states maintain their own list of approved medical schools in the United States and Canada Five of these states accept the list of medical schools approved by the Council on Medical Education and Hospitals of the American Medical Association Twenty boards require applicants for medical licensure from medical schools in the United States to be graduates of medical schools approved by the Council One state requires membership in the Association of American Medical Colleges, while 25 boards require that schools be approved by the Council and be in membership in the Association of American Medical Colleges

Schedule of Written Examination Dates and Reciprocity Meetings

The current schedules of the licensing boards for written examination for medical licensure and meetings for the issuance of reciprocity or endorsement of credentials are given in table 20 To meet the demands for licensure in recent years as a result of the increase in the numbers of candidates seeking licensure, examination dates and reciprocity meetings have been scheduled at more frequent intervals and are arranged to coincide closely with the examination dates of basic science boards This is particularly true with regard to the issuance of licenses without examination In some states temporary permits are granted enabling physicians to begin the practice of medicine immediately

Temporary Licenses

The licensing boards of 17 states, Alaska, Puerto Rico and the Virgin Islands provide for the issuance of temporary permits The names of these states, the length of validity of the permit, and the number of permits granted during 1949 are shown in table 21 Delaware, Maine, Oklahoma and the Virgin Islands initiated this service for the first time in 1949 Maine issues permits to summer camp physicians, Indiana and Nebraska to reciprocity applicants until licensure is perfected while Puerto Rico and Virgin Islands grant this privilege to physicians in government positions only There were 615 permits issued by 15 boards, four issued none while one board did not maintain a numerical record

Licensure on Government Credentials

The medical practice acts of most states do not provide for the acceptance of government credentials as a basis for licensure without examination The licensing boards of California, Illinois, Pennsylvania, Rhode Island, Texas, Virginia, Puerto Rico and the Virgin Islands will issue a license to a physician who has passed an examination for admission to the medical corps of the United States Army, United States Navy or the Public Health Service Texas limits its recognition to the Army and Navy Legal residents of Pennsylvania who were qualified to take the state board examination but were prevented from doing so by reason of enlistment or induction into the military or naval forces of the United States are licensed without examination in that state

Medical License Fees

Table 22 lists for each state, territory and possession the fee charged by the medical licensing board for registration by examination and also by reciprocity or endorsement of credentials The examination fee tends to be uniform, the majority of the boards charging a *and Endorsement, 1949—Continued*

Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	Alaska Hawaii Puerto Rico and Virgin Islands	Totals	Marginal Number
1			1							1		8		2								2			1						24	58
	5	1	11	6	1	1	1		2	1		8		4	3						4	8	1		5	1		1			114	59
			1	3		1			1		1	1		5			8				1	8			2	1					52	60
	1	2	2				1	1	2		3	2			2		1		4		1	8			8					1	69	61
				1					1	2												1									13	62
	1			1					1	2	7	2			8		1												1		41	63
	1	1	1	1						4	1	1		1					2				1				1				32	64
		1		1					1		2					1							5			3					16	65
11	2	2						3	3		14		1	4			4	1						8		1					63	66
1	2	2	1	2					1	1	7	2		5	1		4		5	1	3		1		3	4	6	1		2	79	67
	4	2		2					1		5	11		3			1			1	8	5		1	3	1	6			1	75	68
	2	3		3	1	1			2	1	6					2				1		2				1	1	7			63	69
	7	7		3	1						13					3	1			1		2				2		10	1	2	82	70
			1										1																		2	71
1			2										2																		13	72
								1	2									1			1				1						6	73
			1						2		11			1										1		1					30	74
			3	1					1		1	1																			7	75
			2					1			1											1									8	76
3		1			1	1	1	2		2	15	1		3	1	1						1		4	1						49	77
								1																							1	78
									2		1			1														1			6	79
2	1					1		3	30	2	64	1		12								1			2	1			1	2	152	80
			1	4	2		2	1	1		1	1	1	5		1	1				2	10			2		2	2	1		107	81
																					1										7	82
3								4	1		2			4		5						9						1			32	83
310	215	128	61	122	36	47	26	60	270	44	1 041	128	24	278	61	103	247	25	40	29	78	292	38	34	123	153	53	86	16	41	6 929	84
20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50		

fee of $25 The fee for a license without examination varies from $20 to $200 In a few instances boards report that the fee will be the same as that charged by the reciprocating state

Annual Registration

Thirty states, the District of Columbia, Alaska and Hawaii require physicians to register their license annually or biennially In table 23 are listed the licensing boards which exact this requirement and the fee charged for such registration In general, the licensing boards require such registration whether or not the physician resides in the state The fee ranges from $1 to $10 No fee is charged for this registration in Georgia Minnesota and New York require biennial registration Florida has discontinued this requirement

Candidates Examined for Medical Licensure, 1945-1949

In table 24 are tabulated the number of candidates examined for medical licensure in the United States and its territories and possessions for the five year period, 1945-1949 For each year there is recorded the number who passed and failed licensing examinations Totals for the five years and the percentage of failures for five years are also given

In the five year period shown 33,291 examinations were given, 29,736 were successful tests and 3,555, or 10 7 per cent, resulted in failures California leads in the number of examinations given In this state 2,485 applicants were examined of whom 125 or 5 per cent failed More than 2,000 candidates were successful in Illinois, New York and Pennsylvania and more than 1 000 in Florida Minnesota, Missouri, Ohio and Texas

The greatest percentage of failures, 62 8 per cent, occurred in Massachusetts The majority of those who failed in this state represent graduates of unapproved medical schools and schools of osteopathy The number failing in this state in 1949 was the lowest in the five year period and will probably further decrease, since the unapproved schools whose graduates the board was required by law to examine are no longer in operation The State Approving Authority has furthermore ruled that students matriculating after Jan 1, 1941 in institutions not meeting the standards of this authority will not be eligible for licensure

New York's percentage of failures was the second highest, 46 6 per cent This state examines a considerable number of graduates of foreign medical schools, many of whom do not pass their first examination Regulations permitting certain graduates of unapproved and osteopathic schools to its licensure examination also contributed to the high percentage of failures in this state

Seven other states had more than 10 per cent failures in five years Twenty-six states failed less than 5 per cent of those examined in the five year period Nine states had no failures In five years only one physician was examined for licensure in Wyoming and was licensed

The annual percentage of failures for all boards has varied from 9 9 per cent to 12 5 per cent The highest percentage was in 1949

The foregoing figures represent examinations given and not individuals A candidate who fails more than once in a state in a given year is counted only once, but should he again fail in a succeeding year this fact is computed among the failures for that year In compiling the tabulations in this study, a successful candidate securing a license in more than one state in a given year is counted in both states and likewise counted if he passed at examinations in later years The totals in this table give only a fair approximation of the number of physicians added to the profession after written examination during the last five years Table 14 gives the exact compilation of the number of physicians who constitute new additions to the medical profession

TABLE 12—*Licentiates Representing Additions to the Medical Profession, 1949*

	Examination	Reciprocity and Endorsement	Total
Alabama	13	5	18
Arizona	13	3	16
Arkansas	52	0	52
California	416	87	503
Colorado	71	6	77
Connecticut	26	65	91
Delaware	8	1	9
District of Columbia	24	60	84
Florida	63	0	63
Georgia	108	2	110
Idaho	7	5	12
Illinois	262	32	294
Indiana	94	4	98
Iowa	59	15	74
Kansas	96	5	101
Kentucky	86	6	92
Louisiana	157	0	157
Maine	19	13	32
Maryland	170	17	187
Massachusetts	55	196	251
Michigan	190	19	209
Minnesota	112	30	142
Mississippi	30	6	36
Missouri	192	18	210
Montana	5	0	5
Nebraska	52	3	55
Nevada	2	1	3
New Hampshire	7	21	28
New Jersey	75	46	121
New Mexico	2	1	3
New York	296	677	973
North Carolina	87	22	109
North Dakota	13	3	16
Ohio	287	43	330
Oklahoma	66	12	78
Oregon	39	11	50
Pennsylvania	356	74	430
Rhode Island	8	16	24
South Carolina	43	4	47
South Dakota	6	2	8
Tennessee	135	9	144
Texas	121	6	127
Utah	29	7	36
Vermont	14	13	27
Virginia	109	13	122
Washington	44	14	58
West Virginia	21	4	25
Wisconsin	86	10	96
Wyoming	1	2	3
Alaska, Hawaii and Puerto Rico	33	7	40
Total	4 250	1,616	5,866

Registration of Physicians, 1904-1949

A recapitulation of the totals discussed in the tables presented in this study for 46 years (1904-1949) is included in table 25 This tabulation includes the number of physicians examined and registered by written examination, the annual percentage of failures, the number registered annually by reciprocity or endorsement of credentials and the total registered No obvious trend in the numbers registered is evident from 1904 to 1933 except in 1918, when 4,231 were licensed, the lowest registration in 46 years This decrease was occasioned by World War I By contrast, in 1943 the number registered increased 1,240 as the result of the accelerated curriculum in the medical schools and the efforts made to maintain civilian care during World War II at as high a level as possible and still provide for the needs of the military In 1943 more physicians were examined than in any previous year

The number registered in 1946 was almost double the number registered in 1945 Separation from service of a large number of medical officers and their return to private practice in states other than those in which they were previously licensed and of recent graduates who entered the military service on completion of their

TABLE 13—*Licentiates Representing Additions to the Medical Profession Grouped in Geographic Divisions, 1949*

	Examination	Reciprocity and Endorsement	Total
New England			
Maine	19	13	32
New Hampshire	7	21	28
Vermont	14	13	27
Massachusetts	55	196	251
Rhode Island	8	16	24
Connecticut	26	65	91
	129	324	453
Middle Atlantic			
New York	296	677	973
New Jersey	75	46	121
Pennsylvania	356	74	430
	727	797	1,524
East North Central			
Ohio	287	43	330
Indiana	94	4	98
Illinois	262	32	294
Michigan	190	19	209
Wisconsin	86	10	96
	919	108	1,027
West North Central			
Minnesota	112	30	142
Iowa	59	15	74
Missouri	192	18	210
North Dakota	13	3	16
South Dakota	6	2	8
Nebraska	52	3	55
Kansas	96	5	101
	530	76	606
South Atlantic			
Delaware	8	1	9
Maryland	170	17	187
District of Columbia	24	60	84
Virginia	109	13	122
West Virginia	21	4	25
North Carolina	87	22	109
South Carolina	43	4	47
Georgia	108	2	110
Florida	63	0	63
	633	123	756
East South Central			
Kentucky	86	6	92
Tennessee	135	9	144
Alabama	13	5	18
Mississippi	30	6	36
	264	26	290
West South Central			
Arkansas	52	0	52
Louisiana	157	0	157
Oklahoma	66	12	78
Texas	121	6	127
	396	18	414
Mountain			
Montana	5	0	5
Idaho	7	5	12
Wyoming	1	2	3
Colorado	71	6	77
New Mexico	2	1	3
Arizona	13	3	16
Utah	29	7	36
Nevada	2	1	3
	130	25	155
Pacific			
Washington	44	14	58
Oregon	39	11	50
California	416	87	503
	499	112	611
Territories and Possessions			
Alaska, Hawaii and Puerto Rico	23	7	30
Totals	4 250	1 616	5,866

internship and before securing state licensure was the primary factor in this increase

The percentage of failures gradually dropped from 19.3 in 1904, when a great many proprietary medical schools were functioning, to 5.7 in 1930 In the years since 1930 the percentage of failures increased reaching another peak of 20.7 per cent in 1940 This was the result of the increase in the number of foreign-trained physicians seeking licensure in the United States, many of whom are not successful after repeated attempts at licensure examinations

TABLE 14—*Licentiates Representing Additions to the Medical Profession, 1935-1949*

	Examination	Reciprocity and Endorsement	Total
1935	5 099	411	5 510
1936	5 548	629	6 177
1937	5 812	612	6 424
1938	5,759	501	6 260
1939	5 584	460	6 044
1940	5,432	455	5 887
1941	5 241	474	5 715
1942	5 560	454	6 014
1943	5,636	372	6 008
1944	6 495	470	6 965
1945	4,979	769	5 748
1946	5 362	1 608	6,970
1947	5 273	1 617	6 890
1948	4 912	1 694	6 606
1949	4 260	1 616	5,870
Totals	80,932	12 142	93 074

TABLE 15—*Requirements of Premedical Training by Medical Licensing Boards*

Two Years or More of College

Alabama
Arizona
Arkansas
Colorado
Connecticut
Delaware
District of Columbia
Florida
Georgia
Idaho
Illinois
Indiana
Iowa
Kansas
Kentucky
Louisiana
Maine
Maryland
Massachusetts
Michigan
Minnesota
Mississippi
Missouri
Montana
Nebraska
Nevada
New Hampshire
New Jersey
New Mexico
New York
North Carolina
North Dakota
Ohio
Oklahoma
Oregon
Pennsylvania
Rhode Island
South Carolina
South Dakota
Tennessee
Texas
Utah
Vermont
Virginia
Washington
West Virginia
Wisconsin
Wyoming
Alaska
Canal Zone
Hawaii
Puerto Rico
Virgin Islands

One Year of College
California

TABLE 16—*Medical Schools Requiring an Internship*

United States

College of Medical Evangelists
University of Southern California School of Medicine
Stanford University School of Medicine
Chicago Medical School
Northwestern University Medical School
University of Minnesota Medical School
Duke University School of Medicine *

Canada

University of Manitoba Faculty of Medicine
Dalhousie University Faculty of Medicine
University of Montreal Faculty of Medicine

Degree not withheld until internship completed

This table again refers to examinations given annually rather than individuals examined

Graduates of Approved Schools and Others Registered, 1922-1949

The educational preparation of physicians registered for the practice of medicine from 1922 to 1949 inclusive is shown in table 26 In the computation of these figures, schools rated as class A and B prior to 1928 by the Council on Medical Education and Hospitals of the American Medical Association are classified as

TABLE 17—*Medical Licensing Boards Requiring a One Year Internship* *

Alabama
Arizona
Delaware[1]
District of Columbia
Idaho -
Illinois[1]
Iowa[1]
Michigan[1]
Montana
Nevada
New Hampshire
New Jersey[1]
North Dakota
Oklahoma[1]
Oregon
Pennsylvania[1]
Rhode Island[1]
South Dakota
Utah[1]
Vermont[1]
Washington[1]
West Virginia
Wisconsin
Wyoming
Alaska
Canal Zone[1]
Hawaii[1]
Puerto Rico[1]
Virgin Islands

* Some states require the internship for graduates of medical faculties abroad and from reciprocity or endorsement applicants

1 Internship must be a rotating service

2 Internship must be a straight service

TABLE 18—*Licensure Requirements for Interns and Residents in Hospitals*

	Licensure in State Required for	
	Interns	Residents
Alabama	No	No
Arizona	No	No
Arkansas	No	Yes
California	No[1]	Yes[2]
Colorado	No	No
Connecticut	No[3]	No[3]
Delaware	No	No
District of Columbia	No	Yes
Florida	No	Yes
Georgia	Yes	Yes
Idaho	No	No
Illinois	No	Yes
Indiana	No	Yes
Iowa	No	Yes
Kansas	No	Yes
Kentucky	No	No
Louisiana	No	Yes
Maine	No	Yes
Maryland	No	No[3]
Massachusetts	Yes	Yes
Michigan	No	Yes
Minnesota	No	Yes
Mississippi	No	Yes
Missouri	No	No
Montana	No	Yes
Nebraska	No	No
Nevada	Yes	Yes
New Hampshire	No	No
New Jersey	No[4]	No[4]
New Mexico	No	Yes
New York	No	No
North Carolina	No	Yes
North Dakota	No	Yes
Ohio	No	Yes
Oklahoma	No	Yes
Oregon	No	No
Pennsylvania	No	Yes
Rhode Island	No	No
South Carolina	No	Yes
South Dakota	No	No
Tennessee	No	No
Texas	No	Yes
Utah	No	No
Vermont	No	No
Virginia	No[5]	No[5]
Washington	No	Yes
West Virginia	No	No
Wisconsin	No	Yes
Wyoming	No	No
Alaska	No	No
Canal Zone	No	No
Hawaii	No	No
Puerto Rico	Yes	Yes
Virgin Islands	No	No

1 Physician registered with state board may serve as an intern not to exceed two years without licensure

2 May commence residency before licensure

3 Required by some hospitals

4 May have service of two years without licensure

5 May have service of three years without licensure

approved In the column headed "Others" are included persons who graduated prior to 1907, when the first classification of medical schools was made by the Council, graduates of class C schools, graduates of foreign faculties of medicine, osteopaths given recognition by medical licensing boards, and graduates of medical schools since 1907 which have not been approved by the Council In 1928 the classification of medical schools in categories of A, B and C by the Council was discontinued Since that date schools have been classified simply as approved or unapproved

TABLE 19—*Professional Educational Requirements by Medical Licensing Boards*

	Length of Medical School Academic Year						Total Time Spent in Medical School (Registration to Graduation)						
	Hours	Weeks	Months	Same as Approved Medical Schools	Same as A A M O and O M E and H *	Not Specified by Board	Hours	Weeks	Months	Years	M D Degree	Same as Approved Medical Schools	Same as A.A M O and O M.E and H *
Alabama			9								X		
Arizona					X								X
Arkansas			9							4			
California		32					4,000			4			•
Colorado						X					X		
Connecticut		82								4			
Delaware			7						28		X		
District of Columbia			9							4			
Florida			9							4			
Georgia			9							4			
Idaho			9							4			
Illinois			9						36				
Indiana			8						42				
Iowa			9							4	•		
Kansas						X				4			
Kentucky			8½							4			
Louisiana					X		•				X		X
Maine		32 34				•				4			
Maryland					X	•		•		4		X	
Massachusetts		32									X		
Michigan		32							36				
Minnesota		30								4			
Mississippi		32								4			
Missouri		82								4			
Montana			9							4			
Nebraska			9						36				
Nevada			9							4			
New Hampshire						X	•				X		
New Jersey			8							4			
New Mexico				X							X	X	
New York			8							4			
North Carolina			9							4			
North Dakota			9							4			
Ohio			9							4			
Oklahoma				X		•					X		
Oregon			8							4			
Pennsylvania		32								4			
Rhode Island					X						X		
South Carolina		26						104					
South Dakota						X				4			
Tennessee			9						86			•	••
Texas			8							4			
Utah			9							4			
Vermont	900									4	•		
Virginia		32	8	•						4			
Washington			9							4			
West Virginia						X					X		
Wisconsin						X				4			
Wyoming			9							4			
Alaska					X								X
Canal Zone			10							4	X		
Hawaii					X								X
Puerto Rico					X								X
Virgin Islands						X					X		X

* Association of American Medical Colleges and Council on Medical Education and Hospitals of the American Medical Association

X Implies requirements are those of the two accrediting agencies

In the 28 year period 223,196 of the physicians registered, or 89 7 per cent of the total, were graduates of approved schools and 25,582, or 10 3 per cent, were graduates of other schools In 1949, there were 12,148 candidates registered, of whom 11,378 (93 7 per cent) represented graduates of approved medical schools and 770 (6 3 per cent) were in the second group

Graduates of Unapproved Schools Registered, 1944-1949

Graduates of institutions which are classified by the Council on Medical Education and Hospitals of the American Medical Association as unapproved were registered in 23 states, Alaska and Hawaii during the last six years Figures are reported separately in table 28 for those licensed after written examination and those licensed by reciprocity or endorsement of credentials The number annually registered in these 23 states are listed for the six year period from 1944 to 1949 inclusive In the six years shown, 1,149 graduates of unapproved schools were registered, 1,120 by examination and 20 by endorsement In 1949, there were 191 licensed in 15 states, 184 by examination and 7 by reciprocity

Illinois, which accepts for licensure the graduates of one school which was not approved by the Council until 1948, New York and Florida which have made certain concessions, and Massachusetts licensed the largest number of graduates of unapproved medical schools

Graduates of Schools of Osteopathy Registered By Examining Boards, 1944-1949

The number of graduates of schools of osteopathy granted the privilege of practicing medicine or surgery or both by 17 medical examining boards for six years (1944-1949) are given in table 29 There have been 1,122 such individuals registered, 814 by examination and 308 without written examination In 1949 there were 98 so registered in 14 states, 66 by examination and 32 by reciprocity

Following is a summary of the situation in the 16 states and the District of Columbia providing for the licensing of osteopaths by the medical examining board

In 1947, Alabama registered a graduate of a school of mechanotherapy

In Colorado an osteopath receives a license to practice medicine In Connecticut any registered osteopath may practice either medicine or surgery or both, according to the type of examination taken, if he passes a satisfactory examination before the medical examining board In Delaware osteopaths are licensed as "osteopathic physicians" In the District of Columbia osteopaths are granted the right to practice surgery In Indiana the licenses issued to osteopaths under a 1945 amendment to the medical practice act authorize the holders to practice medicine and surgery Licentiates in osteopathy prior to 1945 have now been authorized to practice osteopathy, surgery and obstetrics In Massachusetts the medical practice act, by definition includes osteopathy in the practice of medicine and does not differentiate the type of license issued to an osteopathic applicant According to a law passed in Nebraska in 1943, "any person now licensed to practice osteopathy may, if application was made prior to July 1, 1948 and on payment of the prescribed fee, take the first regular examination given after the application is made before the Board of Examiners in Medicine If successful, he or she shall receive a license to practice

Table 20—*Schedule of Written Examination Dates and Issuance of Licenses by Reciprocity or Endorsement of Credentials*

	Written Examination	Licenses by Reciprocity or Endorsement Issued
Alabama	Once annually	Continuously
Arizona	Quarterly	Quarterly
Arkansas	Semi annually	Continuously
California	Quarterly	Six meetings annually
Colorado	Semi annually	Quarterly
Connecticut	March July and Nov	Continuously
Delaware	January and July	January and July
District of Columbia	Semi annually	Quarterly
Florida	June and Nov	None
Georgia	June and Oct	Quarterly
Idaho	Jan and July	Jan and July
Illinois	Quarterly	Quarterly
Indiana	Annually—June	Six meetings annually
Iowa	June and Dec	Every 2 months
Kansas	Semi annually	Semi annually
Kentucky	Semi annually	Continuously
Louisiana	June and Dec	June and Dec
Maine	March July and Nov	March July and Nov
Maryland	June and Dec	Every 5 weeks
Massachusetts	Jan and July	Every month
Michigan	June and Oct	Continuously
Minnesota	Quarterly	Quarterly
Mississippi	June	June and Dec
Missouri	Three times annually	Six times annually
Montana	Semi annually	Semi annually
Nebraska	Once annually	Continuously
Nevada	Semi annually	Semi annually
New Hampshire	March and Dec	March and Dec.
New Jersey	June and Oct	Monthly
New Mexico	Semi annually	Semi annually
New York	Three times annually	Continuously
North Carolina	June	Five times annually
North Dakota	Jan and July	Jan and July
Ohio	June and Dec	Quarterly
Oklahoma	Once annually	Quarterly
Oregon	Jan and July	Quarterly
Pennsylvania	Jan and July	Monthly
Rhode Island	Quarterly	Quarterly
South Carolina	Semi annually	Monthly
South Dakota	Semi annually	Semi annually
Tennessee	Every 3 months	Quarterly
Texas	June and Nov	June and Nov
Utah	Once annually—July	Semi annually
Vermont	Semi annually	Continuously
Virginia	Semi annually	Semi annually
Washington	Semi annually	Semi annually
West Virginia	Quarterly	Quarterly
Wisconsin	Twice annually	Twice annually
Wyoming	Quarterly	Quarterly
Alaska	March and Sept.	Continuously
Canal Zone	As needed	As needed
Hawaii	Jan and July	Monthly
Puerto Rico	Semi annually	Quarterly
Virgin Islands	Twice annually	Twice annually

Table 21—*Temporary Permits 1949*

State	Permit Valid for	Permits Granted
Arizona	Next board meeting	
Delaware	Four months	2
Georgia	Next board meeting	
Idaho	Six months	9
Indiana [1]	Six months	137
Kansas	Next board meeting	78
Kentucky	1-5 years (limited license)	
Louisiana	Next board meeting	101
Maine [3]	Ten weeks	20
Mississippi	Next board meeting	78
Nebraska [1]	Until licensure is perfected	8
New Hampshire	Varies	
New Jersey	Four months	9
New Mexico	Six months	47
Oklahoma	One year	4
Virginia	Next board meeting	57
West Virginia	Next board meeting	*
Alaska	Six months	10
Puerto Rico [2]	Until 1951	45
Virgin Islands [2]	Until next examination	1
Total		615

1 Reciprocity applicants
2 Government positions only
3 Summer camp physicians
* No numerical record

Table 22—*Medical Licensure Fees*

	Examination	Reciprocity or Endorsement
Alabama	$ 10	$ 50
Arizona	25	100
Arkansas	25	50-100
California	25	100
Colorado	50 [1]	50
Connecticut.	25	50 [2]
Delaware	25	100
District of Columbia	25	50
Florida	25	
Georgia	20	50
Idaho	25	100
Illinois	15	25
Indiana	25	50
Iowa	25	50
Kansas	25	[3]
Kentucky	25	50
Louisiana	25	50 [4]
Maine	25	50
Maryland	20	50
Massachusetts	25	50
Michigan	10	50
Minnesota	20	75
Mississippi	10	50
Missouri	15	50
Montana	50	75
Nebraska	25	50
Nevada	100	200
New Hampshire	20	20
New Jersey	25	100
New Mexico	50	50
New York	25	25
North Carolina	15	50
North Dakota	25	50
Ohio	25	50
Oklahoma	25	100
Oregon	25	100
Pennsylvania	25	50
Rhode Island	20	20
South Carolina	25	50
South Dakota	20	50
Tennessee	25	50
Texas	15	25
Utah	25	50
Vermont	20	50
Virginia	25	50
Washington	25	25
West Virginia	25	100
Wisconsin	25	50 [4]
Wyoming	25	50
Alaska	25	100
Hawaii	25	25
Puerto Rico	30	30
Virgin Islands	65	50

1 For graduates within last five years $25
2 Endorsement of certificate of National Board of Medical Examiners $25
3 Same as charged by the reciprocating state
4 Same as charged by the reciprocating state if more than $50

medicine and surgery in the state" In New Hampshire osteopaths are granted the right to practice medicine and surgery

New Jersey provides that osteopaths licensed prior to Nov 1, 1941 who furnish proof prior to that date of having served for a period of two years as an intern or resident surgeon in an osteopathic or medical hospital approved by the board of medical examiners, of having completed a postgraduate course of two years in a college of osteopathy or medicine approved by the board or of having had at least three years of practice in a hospital approved by the board can be admitted to an examination in pharmacology, therapeutics and surgery and, if successful, can obtain a license to practice medicine and surgery Since 1941 all osteopathic applicants who have met the requirements of the medical practice act have been licensed to practice medicine and surgery

In New York a law approved April 10, 1946 provides that any osteopathic licentiate who had obtained the additional right to use instruments for minor surgical procedures and to use anesthetics, antiseptics, narcotics and biologic products or any applicant who has met or shall meet all the preliminary and professional requirements as required as of September 1, 1936 and has satisfactorily passed or shall satisfactorily pass the regular medical licensing examination shall be granted the right to practice medicine without limitation as defined by the statutes of the State of New York

A law passed in Ohio in 1943 gives osteopaths who obtain their licenses under that act the right to practice osteopathic medicine and surgery In Oregon they are granted the right to practice "in the subjects" covered by the examination, which includes surgery The medical practice act of Texas provides for the issuing of a license to practice medicine only, and osteopaths are issued licenses unrestricted in scope In Virginia osteopaths may obtain the right to use drugs and perform surgery with the use of instruments if they satisfy the board of medical examiners that they are qualified to do so Wisconsin grants osteopaths the privilege of practicing surgery, and in Wyoming the statutes contain no specific provision for the licensing of osteopaths

Table 23—*States Requiring Annual Registration*

	Fee		Fee		Fee
Arizona	$ 3	Louisiana	$ 2	Pennsylvania	$ 1
Arkansas	a	Minnesota	2	Tennessee	5
California	2	Missouri *	1	Texas	2
Colorado	b	Montana	d	Utah	3
Connecticut	2	Nebraska	1	Virginia	1
Dist of Columbia	2	Nevada	2	Washington	5
Georgia	None	New Mexico	f	West Virginia *	2
Idaho	10	New York *	4	Wisconsin	3
Indiana	c	North Dakota	e	Wyoming	2 50
Iowa	1	Oklahoma	3	Alaska	10
Kansas	1	Oregon	10	Hawaii	2

a Residents $2, Nonresidents $4
b Residents $2, Nonresidents $10
c Residents $5, Nonresidents $10
d Residents $5, Nonresidents $1
e Residents $5, Nonresidents $2
f Residents $2 Nonresidents $5
* Biennial registration

Table 24—*Candidates Examined, 1945-1949*

	1945		1946		1947		1948		1949		Totals for Five Years		
	P	F	P	F	P	F	P	F	P	F	P	F	%F
Alabama	23	0	20	0	97	0	16	2	46	1	202	3	1 5
Arizona	11	0	12	1	19	3	17	0	22	0	81	4	4 7
Arkansas	65	0	63	0	54	0	59	0	52	0	293	0	0 0
California	467	11	530	11	503	10	493	36	492	57	2 485	125	5 0
Colorado	66	0	77	0	95	0	72	2	78	0	388	2	0 5
Connecticut	31	12	55	10	49	17	32	7	29	15	196	61	23 7
Delaware	5	0	16	1	20	0	20	0	21	0	82	1	1 2
Dist of Columbia	20	1	41	0	39	0	33	3	30	1	163	5	3 0
Florida	198	37	373	62	314	17	301	26	308	19	1,494	161	10 8
Georgia	124	0	168	2	129	0	131	1	109	4	661	7	1 0
Idaho	18	0	54	0	62	0	51	0	38	1	223	1	0 4
Illinois	415	31	751	33	605	16	512	44	367	67	2,650	191	6 7
Indiana	231	0	139	16	111	12	99	2	98	4	678	34	4 8
Iowa	68	1	57	4	55	0	67	0	57	0	304	5	1 6
Kansas	101	0	102	0	86	0	67	0	99	1	455	1	0 2
Kentucky	76	0	166	0	90	0	60	0	86	0	478	0	0 0
Louisiana	208	1	189	1	225	1	182	0	164	1	968	4	0 4
Maine	9	3	45	4	31	2	31	3	25	4	141	16	10 1
Maryland	193	8	204	4	175	6	185	8	172	17	929	43	4 4
Massachusetts	124	175	89	163	84	140	65	111	41	92	403	681	62 8
Michigan	194	0	215	0	116	0	181	0	164	0	870	0	0 0
Minnesota	217	0	313	0	248	0	212	1	184	0	1,174	1	0 1
Mississippi	50	0	45	0	59	0	47	0	35	5	236	5	2 1
Missouri	258	1	251	1	265	0	238	0	198	0	1,210	2	0 2
Montana	2	0	17	0	8	0	10	1	8	0	45	1	2.2
Nebraska	74	7	81	5	87	3	84	16	52	4	378	35	8 5
Nevada	1	1	15	3	8	0	3	1	4	1	31	6	16 2
New Hampshire	6	1	20	4	10	0	10	1	7	1	53	7	11 7
New Jersey	95	9	116	5	89	13	90	22	76	9	466	58	11 1
New Mexico	0	0	1	0	1	0	3	0	4	1	9	1	10 0
New York	287	247	427	386	610	482	426	371	411	397	2,161	1,883	46 6
North Carolina	132	1	95	0	113	1	112	0	88	0	540	2	0 4
North Dakota	4	0	13	0	25	0	30	0	24	0	96	0	0 0
Ohio	325	13	340	10	297	3	322	7	262	6	1,546	39	2 5
Oklahoma	69	0	65	0	72	0	59	0	47	1	315	1	0 3
Oregon	19	1	50	3	80	0	48	0	47	4	244	8	3 2
Pennsylvania	426	13	463	3	437	3	448	6	396	3	2 170	28	1 3
Rhode Island	6	0	40	0	32	0	21	0	15	1	114	1	0 9
South Carolina	58	0	53	0	55	0	57	0	43	1	266	1	0 4
South Dakota	6	0	10	0	18	0	27	0	10	0	71	0	0 0
Tennessee	193	2	157	1	148	0	150	0	177	0	825	3	0 4
Texas	228	7	266	14	282	13	262	33	184	10	1,222	77	5 9
Utah	13	0	79	0	0	0	18	0	30	0	140	0	0 0
Vermont	2	0	5	0	27	1	16	0	11	4	61	5	7 6
Virginia	39	2	174	2	130	4	136	4	109	5	588	17	2 8
Washington	35	0	130	0	116	0	110	0	72	0	463	0	0 0
West Virginia	20	0	64	0	40	0	55	0	61	0	240	0	0 0
Wisconsin	90	0	123	1	148	0	182	7	109	0	653	8	1 2
Wyoming	0	0	0	0	0	0	0	0	1	0	1	0	0 0
U S Territories and Possessions	35	2	74	4	55	3	54	5	56	7	274	21	7 0
Total Examined	5,930		7,610		7,164		6 624		5,963		33 201		
Passed	5,343		6,856		6,414		5,904		5,219		29,736		
Failed	587		754		750		720		744		3 465		
Percentage Failed	9 9		9 9		10 5		10 8		12 5		10 7		

Table 25—*Registration of Physicians, 1904-1949*

Year	Examined	Passed	Percentage Failed	Reciprocity or Endorsement	Total Registered
1904	7,056	5,693	19 3	1,005	6,698
1905	7,178	5 688	20 8	394	6 082
1906	8,040	6,373	20 7	1,502	7,875
1907	7,279	5,731	21.8	1,427	7,158
1908	7 775	6 089	21 7	1,284	7,373
1909	7,295	5,865	19 6	1,381	7,246
1910	7,011	5,719	18 4	1,640	7,359
1911	6,964	5,582	19 8	1,243	6,825
1912	6 880	5,467	20 5	1,273	6,740
1913	6 453	5,253	18 6	1,292	6 545
1914	5,579	4 379	21 5	1 439	5,818
1915	5,334	4,507	15.5	1 399	5,906
1916	4,878	4 151	14 9	1,353	5 504
1917	4,754	4,085	14 0	1,360	5,445
1918	3,667	3,184	13 2	1 047	4,231
1919	4 750	4 074	14 2	2,546	6 620
1920	4 796	4 062	15 3	2,558	6 620
1921	4 825	4,228	12 4	2,186	6,414
1922	4,031	3,539	12 2	2,073	5,612
1923	4,727	4,028	14 8	2 405	6 433
1924	5,392	4,756	11.8	1,923	6 679
1925	6 002	5,450	9 2	1,861	7,311
1926	5,770	5 314	7 9	1,955	7 269
1927	5,389	5 002	7.2	2,176	7,178
1928	5 458	5 090	6 7	2,228	7,318
1929	5,629	5,282	6.2	2 420	7,702
1930	5,571	5 255	5 7	2,366	7 621
1931	5,611	5,263	6.2	2,211	7,476
1932	5 675	5,247	7 6	1,886	7,133
1933	5 673	5,244	7 6	1 969	7,213
1934	6 145	5 628	8 4	2,161	7,789
1935	6 443	5 859	9 1	2,194	8 053
1936	6 918	6,224	10 0	2,773	8 997
1937	7,334	6,604	10 0	3,205	9 809
1938	7,461	6,589	11 7	2 956	9 545
1939	7 754	6,493	16 3	2,872	9 365
1940	7,926	6,291	20 7	2 866	9 157
1941	7 539	6,057	19 7	2 762	8,819
1942	7,223	6,120	15 4	2,469	8 589
1943	8 403	7,489	10.9	2 340	9,829
1944	6,817	6 011	11.8	2,596	8,607
1945	5,930	5,343	9.9	3 622	8 965
1946	7,610	6,856	9.9	9 669	16 525
1947	7 164	6,414	10.5	7 701	14,115
1948	6,624	5,904	10.8	7 595	13,499
1949	5,963	5,219	12 5	6 929	12,148

The medical practice act of the latter state provides that the certificate issued to all applicants "shall be deemed licenses to practice medicine in all branches in which the applicant has taken examination in the state"

Licensure of Foreign-Trained Physicians

In 1947 the Council on Medical Education and Hospitals of the American Medical Association established an advisory committee on foreign medical credentials to assist it in studying the problem of physicians trained in foreign medical schools who desired to come to the United States and establish a medical practice Eighteen organizations and governmental agencies in addition to the Council are represented on the committee In 1949[1] the committee recommended that the Council on Medical Education and Hospitals, in collaboration with the Association of American Medical Colleges, give immediate consideration to the feasibility of developing a limited listing of foreign medical schools On the basis of published reports, personal reports from American physicians who have visited foreign medical schools in recent years and the records of the performance of the graduates of foreign schools in state licensing examinations during the past 10 years, a preliminary list of foreign schools was published in February 1950 by the Council on Medical Education and Hospitals and the Executive Council of the Association of American Medical Colleges[2] In the preamble to this list, these two bodies state that they are of the opinion that medical institutions and medical organizations in the United States would be justified in considering current and past graduates of the medical schools listed on the same basis as graduates of approved medical schools in the United States The present list is not final, and it will be supplemented as information is compiled for other schools It was considered desirable to issue a preliminary list at this time rather than to wait until information could be compiled for all medical schools of the world, a process that will require years to complete The medical faculties named on this initial list are as follows

Table 26—*Graduates of Approved Schools and Others Registered 1922-1949*

Year	Graduates of Approved Schools		Others		Totals
	Number	Per Cent of Total	Number	Per Cent of Total	
1922	4 519	80 5	1 093	19 5	5 612
1923	5 196	80.8	1 237	19 2	6 433
1924	5 687	85 1	992	14 9	6 679
1925	6 314	86 4	997	13 6	7,311
1926	6 441	88 7	828	11.3	7,269
1927	6 410	89 4	768	10 6	7 178
1928	6 585	90 1	733	9 9	7 318
1929	7 003	91 0	699	9 0	7 702
1930	7 011	92.1	610	7 9	7 621
1931	6 932	92 8	544	7.2	7 476
1932	6 676	92 1	457	6.3	7 133
1933	6 774	93 7	459	6.3	7 233
1934	7 172	92 1	617	7.9	7 789
1935	7 360	91.3	693	8 6	8 053
1936	7 034	88 1	1 063	11.8	8,097
1937	8 391	85.5	1 418	14 4	9,809
1938	8,315	87 1	1,230	12.9	9,545
1939	8 067	86.2	1 238	13.8	9,305
1940	7 781	85 0	1 376	15 0	9 157
1941	7 770	87 9	1 049	11 9	8,819
1942	7 290	84.9	1,299	15 1	8,589
1943	8 640	87 9	1 189	12 2	9,829
1944	7 737	89.8	870	10.1	8 607
1945	8 233	91.8	732	8 1	8,965
1946	15 692	94 9	835	5.1	16 527
1947	13 097	93 0	1 018	7 0	14 115
1948	12 701	94.8	708	5.2	13 409
1949	11 378	93 7	770	6.3	12 148
Totals	223 196	89 7	25,582	10.3	248 778

Foreign Medical Schools

Denmark

University of Copenhagen Faculty of Medicine (Kobenhavns Universitet Laegevidenskabelige Fakultet)

Finland

University of Helsinki Faculty of Medicine (Helsingfors Universitet Medicinska Fakulteten)

Medical Faculty Turku University (Turun Yliopiston Laaketieteellinen Tiedekunta)

Netherlands

University of Amsterdam Faculty of Medicine (Universiteit van Amsterdam Geneeskunde Faculteit)

State University of Groningen Faculty of Medicine (Rijks-Universiteit te Groningen Medische Faculteit)

State University of Leiden Faculty of Medicine (Rijks-Universiteit te Leiden Faculteit der Geneeskunde)

State University of Utrecht Faculty of Medicine (Rijks-Universiteit te Utrecht Faculteit der Geneeskunde)

Norway

University of Oslo Faculty of Medicine (Kongelige Frederiks Universitet Medisinske Fakultet)

Sweden

Royal Charles University Medical Faculty, Lund (Kungl Karolinska Universitetet Medicinska Fakulteten)

Charles Medico-Surgical Institute, Stockholm (Karolinska Mediko-Kirurgiska Institutet)

Royal University of Uppsala Medical Faculty (Kungl Universitetet i Uppsala Medicinska Fakulteten)

United Kingdom*

England

University of Birmingham Faculty of Medicine
University of Bristol Faculty of Medicine.
University of Cambridge Faculty of Medicine
University of Durham Medical School, Newcastle-upon-Tyne
University of Leeds Faculty of Medicine
University of Liverpool Faculty of Medicine
University of London.**
University of Manchester Faculty of Medicine
University of Oxford Faculty of Medicine.
University of Sheffield Faculty of Medicine

Northern Ireland

Queen s University of Belfast Faculty of Medicine.

Scotland

University of Aberdeen Faculty of Medicine
University of Edinburgh Faculty of Medicine.
University of Glasgow Faculty of Medicine
University of St. Andrews Medical School, St Andrews and Dundee

Wales

Welsh National School of Medicine, University of Wales, Cardiff

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* The recommendation applies only to those physicians trained in the United Kingdom who hold medical degrees from the universities listed The recommendation does not apply to those physicians who received their medical training at these universities or their affiliated hospital medical schools but who did not complete the work for the degree and who obtained their qualifications only through the examinations of the licensing corporations of the United Kingdom

** Work for the medical degree of the University of London is offered at the following hospital medical schools
Charing Cross Hospital Medical School
Guy s Hospital Medical School
King s College Hospital Medical School.
London Hospital Medical School.
Middlesex Hospital Medical School
Royal Free Hospital School of Medicine
St. Bartholomew s Hospital Medical College.
St. George s Hospital Medical School
St. Mary s Hospital Medical School.
St. Thomas Hospital Medical School
University College Hospital Medical School
Westminster Hospital Medical School

[1] J A M A. 139 16 (April 16) 1949

[2] J A M A 142 571 (Feb 25) 1950

TABLE 27—*Requirements of Candidates for Medical Licensure on the Basis of Credentials Obtained in Countries Other Than the United States and Canada*

	Admitted to Examination	Admitted by Endorsement of State License*	Citizenship	Basic Science Certificate	Internship in Hospital in United States	Further Medical Training	Examination Fee, Dollars	Footnotes
Alabama	x		x		x		10	1
Arizona	Not accepted							
Arkansas	Not accepted							
California	x	x	x		x	x	25	2
Colorado	x		1st P	x	x	x	50	7,8,25
Connecticut	x	x	1st P	x			25	3,28
Delaware	x		x		x		25	4,24
District of Columbia	x	x		x	x		25	5,28
Florida	x		x	x		x	25	6
Georgia	Not accepted							
Idaho	Not accepted							
Illinois	x		1st P		x		15	
Indiana	x	x				x	25	7,8
Iowa	x		x	x	x	x	25	8
Kansas	x		x		x		25	9
Kentucky	Not accepted							
Louisiana	Not accepted							
Maine	Not accepted							
Maryland	x		1st P		x	–	20	11,26
Massachusetts	x		1st P				25	
Michigan	x			x	x	x	10	7
Minnesota	x		x	x			20	12
Mississippi	x		x		x		10	13,24
Missouri	x		x		x		15	12
Montana	Not accepted							
Nebraska	x		x	x			25	22,28
Nevada	Not accepted							
New Hampshire	x	x	x		x		20	14,28
New Jersey	x	x	x		x		25	15
New Mexico	x		1st P	x			50	27
New York	x	x	1st P				25	16
North Carolina	Not accepted							
North Dakota	x		x		x	x	25	17
Ohio	x	x	x				25	17 18,23
Oklahoma	Not accepted							
Oregon	x		x	x	x		25	24
Pennsylvania	x		1st P		x		25	19,23
Rhode Island	x		1st P	x	x	x	20	20
South Carolina	Not accepted							
South Dakota	x		1st P	x	x		20	
Tennessee	x		x	x			25	24
Texas	x		x		x		15	21
Utah	Not accepted							
Vermont	Not accepted 14							
Virginia	x		1st P 23				25	12
Washington	x			x	x		25	24
West Virginia	Not accepted							
Wisconsin	x		1st P	x			25	11,24
Wyoming	Not accepted							
Alaska	x	x	x	x	x		25	
Hawaii	x		x		x		25	14
Puerto Rico	x	x	x		x		30	
Virgin Islands	Not accepted							

This summary should be supplemented by direct communication with the secretary of the licensing board of the state in which the physician is interested

x Implies yes

* Refer to chart "Reciprocity and Endorsement Policies" for further data

1 Certificate of National Board of Medical Examiners required

2 (a) Citizenship waived if country in which applicant is licensed will admit to licensure citizens of the United States (b) Acceptable for reciprocal registration if license submitted was granted on same standards as in effect in California on the same date and upon completion of an oral, clinical and written examination (c) Internship in United States satisfactory to the board or completion of senior year in approved medical school in the United States

3 Effective July 1, 1948, physicians who have graduated from medical schools located outside of the United States Canada or the British Isles subsequent to Jan 1, 1940 not eligible

4 Residence of one year in Delaware required

5 (a) Acceptable for reciprocal registration if similar privileges are accorded licentiates of District of Columbia by licensing agency or jurisdiction from which applicant comes (b) Regulations cited refer also to graduates of Canadian schools

6 Senior year in an approved medical school in the United States or Canada possess the degree of Master of Public Health from an acceptable school, or satisfactorily complete a one year's assistant residency, residency or fellowship in an approved hospital in the United States accepted as further training

7 Further training—Completion of senior year in approved medical school in the United States

8 Further training—Internship or one year in medical school in the United States

9 (a) Applicant must be licensed to practice medicine and surgery in country in which school of graduation is located, otherwise required to complete senior year in approved medical school in United States (b) In lieu of internship certificate from three graduates of the applicant s medical school licensed to practice medicine in United States accepted

10 (a) Applicant must be licensed to practice medicine and surgery in country in which school of graduation is located, otherwise required to complete senior year in approved medical school in United States (b) No applications accepted from countries other than England (certain schools) Ireland, Scotland and Australia

11 Fee of $5 00 charged for evaluation of credentials

12 Applicants considered individually

13 Evidence must show school of graduation was acceptable at time of issuance of diploma

14 Diplomates of National Board of Medical Examiners eligible on reciprocity basis

15 (a) Internship completed in foreign countries after July 1 1934 not acceptable (b) Graduates of medical schools of Europe and Asia prior to Nov 10 1941 not accepted (c) Graduates of medical schools of South American Republics Mexico and Cuba not accepted

16 Graduates of continental European medical schools after 1942 required to complete two years of approved internship Graduates of medical schools in Mexico and Latin and South America required to complete two years of approved internship or postgraduate medical study

17 License to practice medicine and surgery in country in which school of graduation is located, otherwise required to complete senior year in approved medical school in United States

18 Graduates of schools in Continental Europe after 1943 not eligible.

19 Medical education completed in foreign medical schools since 1941 not acceptable

20 (a) Matriculants in foreign medical faculties subsequent to Jan 1, 1949 not acceptable (b) Applicant must be licensed to practice medicine and surgery in country in which school of graduation is located

21 European graduates after 1939 limited to English speaking schools

22 Internship of one year in an approved hospital in the United States after acquiring full citizenship required If application is accepted the board has established basic recommendations which must be met prior to citizenship

23 This requirement may be waived

24 Recognition limited to graduates of schools listed by Council on Medical Education and Hospitals of the American Medical Association and Executive Council of Association of American Medical Colleges

25 Graduates of certain medical schools of Europe prior to the year 1940 acceptable at the discretion of the board

26 Graduates of foreign medical schools are considered individually Graduates of medical schools in Europe who obtained the medical degree after Jan 1, 1940 are not eligible unless they have graduated from one of the schools listed by the Council on Medical Education and Hospitals of the American Medical Association and the Executive Council of the Association of American Medical Colleges, or have done some special work in an approved medical school in the United States or a recognized hospital Graduates of Latin American medical schools are not accepted unless they have done outstanding work in medical schools or hospitals in the United States

27 Graduates of foreign medical schools not included on list issued by the Council on Medical Education and Hospitals of the American Medical Association and the Executive Council of the Association of American Medical Colleges may be accepted if they possess either a certificate of the National Board of Medical Examiners or the certificate of one of the American boards in the specialties

28 List of foreign medical schools prepared by Council on Medical Education and Hospitals of the American Medical Association and Executive Council of the Association of American Medical Colleges accepted

The position of the Council and the Executive Council with respect to schools not on this list is that they neither approve nor disapprove these schools but must leave to individual institutions and organizations in the United States the decision whether they will accept graduates of these schools on the same basis that they accept graduates of approved medical schools in the United States

Fourteen state licensing boards have already reported they will use the list as a guide in the evaluation of credentials of foreign-trained physicians Fifteen states reported that their boards have not met since the list was released but that the list will be given consideration The acceptance of this list by licensing boards does not imply, except in a few instances, that graduates of other schools will be refused licensure Most boards have stated that graduates of other schools will be considered on an individual basis

The present requirements for candidates seeking medical licensure in the United States, Alaska, Hawaii, Puerto Rico and the Virgin Islands on the basis of credentials obtained in countries other than the United States and Canada are given in table 27 Thirty-six boards will admit foreign physicians to the licensing examination under varying conditions Six states, Colorado, New Mexico, Oregon, South Dakota, Washington and Wisconsin, which heretofore did not license foreign physicians have modified their regulations and will now accept applications for licensure Maine, however, has reported that foreign-trained physicians are no longer eligible for licensure Graduates of foreign medical schools are not at present accepted for licensure by seventeen boards Five of these states have reported that the list of foreign schools will be considered by their licensing boards at their next meeting Four boards do not require citizenship, while 20 states require full citizenship Twelve states require that the applicant file first citizenship papers only Eight states had this requirement in 1949

From a review of table 27 it would appear that the opportunities for the licensure of foreign-trained physicians is being given serious consideration by the authorities in the various states While an attempt has been made to present the situation as it exists, it should be borne in mind that this table is intended to present

TABLE 28—*Graduates of Unapproved Medical Schools Registered, 1944-1949*

	Examination						Reciprocity and Endorsement						Totals
	1944	1945	1946	1947	1948	1949	1944	1945	1946	1947	1948	1949	
Arizona	0	0	0	0	0	0	0	0	2	0	1	1	4
California	0	0	0	0	0	0	0	4	0	0	0	0	4
Florida	0	0	1	11	25	25	0	0	0	0	0	0	62
Georgia	0	0	0	0	0	1	0	0	0	0	0	3	4
Illinois	45	115	45	64	56	41	0	0	1	0	1	0	368
Iowa	0	0	1	0	0	0	0	0	1	0	0	0	2
Kentucky	0	0	0	2	0	2	0	0	0	0	0	0	4
Maine	0	0	0	0	0	0	0	0	0	0	0	2	2
Massachusetts	102	38	24	37	26	11	0	0	0	0	0	0	238
Mississippi	1	0	4	0	3	0	0	0	0	0	0	0	8
Missouri	0	0	0	0	0	0	1	1	0	0	0	0	2
Nebraska	0	0	0	0	0	0	0	0	1	0	1	0	2
Nevada	0	0	0	0	0	0	1	2	0	0	0	0	3
New Hampshire	0	0	0	1	0	0	0	1	0	0	0	0	2
New Mexico	0	0	0	1	0	0	0	1	0	0	0	0	2
New York	0	0	111	132	60	94	0	0	0	0	0	0	397
Ohio	0	0	6	4	1	1	0	0	0	0	0	0	12
Tennessee	0	0	0	0	0	0	0	0	0	0	0	1	1
Texas	0	0	0	0	0	0	0	0	1	0	0	0	1
Virginia	5	3	10	4	1	3	0	0	1	0	0	0	27
Washington	0	0	2	4	1	1	0	0	0	0	0	0	8
West Virginia	0	0	0	0	0	2	0	0	0	0	0	0	2
Wisconsin	0	0	0	0	0	0	0	1	0	0	0	0	1
Alaska	0	0	0	0	0	1	0	0	0	0	0	0	1
Hawaii	0	0	0	0	0	2	0	0	0	0	0	0	2
Totals	153	156	204	250	173	184	2	10	7	0	3	7	1 149

TABLE 29—*Graduates of Schools of Osteopathy Registered by Medical Boards 1944-1949*

	Examination						Reciprocity and Endorsement						Totals
	1944	1945	1946	1947	1948	1949	1944	1945	1946	1947	1948	1949	
Alabama	0	0	0	1	0	0	0	0	0	0	0	0	1
Colorado	7	7	5	11	5	5	0	0	0	0	0	0	40
Connecticut	5	2	5	3	0	1	0	0	0	0	0	0	16
Delaware	3	0	0	0	0	0	0	0	4	0	0	1	8
Dist of Columbia	0	0	0	0	0	0	0	1	1	1	2	1	6
Indiana	3	0	43	0	0	3	3	7	7	0	0	1	67
Massachusetts	4	5	0	2	2	0	0	0	2	1	5	3	24
Nebraska	0	2	0	1	0	1	0	0	0	0	0	0	4
New Hampshire	3	0	0	0	0	0	2	0	0	3	6	4	18
New Jersey	30	15	9	9	3	5	0	0	0	2	3	1	77
New York	0	0	5	134	34	11	0	0	0	75	13	2	274
Ohio	72	48	47	12	21	24	3	1	7	10	12	4	261
Oregon	0	0	0	0	1	0	8	14	12	16	8	5	64
Texas	38	29	42	38	33	15	1	1	0	0	1	9	207
Virginia	0	0	1	0	1	0	0	0	0	0	1	0	3
Wisconsin	0	1	1	3	2	1	5	15	11	3	6	1	49
Wyoming	0	0	0	0	0	0	2	0	1	0	0	0	3
Totals	165	109	158	214	102	66	24	39	45	111	57	32	1 122

OFFICERS OF STATE BOARDS OF MEDICAL EXAMINERS

Alabama	Dr D G Gill 519 Dexter Ave, Montgomery 4
Arizona	Dr J H Patterson 234 N Central Ave. Phoenix
Arkansas	Dr Joe Verser Harrisburg
California	Dr Frederick N Scatena 1020 N Street, Sacramento 14
Colorado	Dr George H Gillen 831 Republic Bldg Denver 2
Connecticut	Dr Creighton Barker 160 St. Ronan St. New Haven
Delaware	Dr J S McDaniel 229 S State Street Dover
District of Columbia	Dr G C Ruhland 4130 E. Municipal Building Washington
Florida	Dr Frank D Gray 12 N Rosalind Avenue, Orlando
Georgia	Mr R C Coleman 111 State Capitol Atlanta 3
Idaho	Mr Armand L. Bird 305 Sun Bldg Boise
Illinois	Mr Charles F Kervin Capitol Bldg Springfield.
Indiana	Dr Paul R Tindall 1138 K of P Building Indianapolis 4
Iowa	Dr Walter L Bierring 1027 Des Moines Ave Des Moines
Kansas	* Dr J F Hassig 905 N Seventh Street Kansas City 10
Kentucky	Dr Bruce Underwood 620 S Third Street Louisville 2
Louisiana	Dr R. B Harrison 1507 Hibernia Bank Building New Orleans
Maine	Dr A P Leighton 192 State Street, Portland
Maryland	Dr Lewis P Gundry 1215 Cathedral Street, Baltimore 1
Massachusetts	Dr George L. Schadt, Room 37 State House Boston 33
Michigan	Dr J E. McIntyre 100 W Allegan Street, Lansing 8
Minnesota	Dr J F DuBois 230 Lowry Medical Arts Building St. Paul 2
Mississippi	Dr Felix J Underwood Jackson 113
Missouri	Mr John A Hailey State Capitol Building Jefferson City
Montana	Dr Sidney A Cooney 7 W 6th Ave Helena
Nebraska	Mr Oscar F Humble, Room 1009 State Capitol Building Lincoln
Nevada	Dr G H Ross 112 N Curry Street Carson City
New Hampshire	Dr John S Wheeler 107 State House, Concord.
New Jersey	Dr E S Hallinger 28 West State St. Trenton.
New Mexico	Dr Charles J McGoey Coronado Bldg Santa Fe.
New York	Dr J L Lochner 23 S Pearl Street Albany
North Carolina	Dr Ivan Procter 226 Hillsboro Street, Raleigh.
North Dakota	Dr C J Glaspel Grafton.
Ohio	Dr H M Platter 21 West Broad Street Columbus
Oklahoma	Dr F C Gallaher 813 Braniff Building Oklahoma City
Oregon	Mr Howard I Bobbit, 608 Failing Building Portland 4
Pennsylvania	Mrs M G Steiner 351 Education Building Harrisburg
Rhode Island	Mr Thomas B Casey 366 State Office Building Providence
South Carolina	Dr N B Heyward 1329 Blanding Street, Columbia
South Dakota	Dr Clarence E Sherwood, 300 First National Bank Bldg Sioux Falls
Tennessee	Dr H W Qualls 1635 Exchange Building Memphis 3
Texas	Dr M H Crabb 1714 Medical Arts Building Fort Worth.
Utah	Mr Frank E Lees 324 State Capitol Building, Salt Lake City
Vermont	Dr F J Lawliss Richford
Virginia	Dr K. D Graves 631 First St. S W Roanoke.
Washington	Mr J D McDougall Olympia
West Virginia	Dr N H Dyer State Capitol Charleston 5
Wisconsin	Dr C A Dawson Tremont Bldg River Falls.
Wyoming	Dr Franklin D Yoder Capitol Bldg Cheyenne.
Alaska	Dr W M Whitehead Box 140 Juneau.
Canal Zone	Dr S D Avery Balboa Heights
Hawaii	Dr I L Tilden 1020 Kapiolani St. Honolulu.
Puerto Rico	Mr Luis Cueto Coll Box 3717 Santurce.
Virgin Islands	Dr Christian R Moorehead Charlotte Amalie

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* Deceased

TABLE 30—*Foreign-Trained Physicians Examined for Medical Licensure in the United States, 1949*

SCHOOL	1 California		2 Colorado		3 Connecticut		4 Dist of Columbia		5 Florida		6 Illinois		7 Kansas		8 Maine		9 Maryland		10 Massachusetts		11 Minnesota		12 Mississippi		13 Missouri		14 New Hampshire		15 New Jersey		16 New Mexico		17 New York		18 North Dakota		19 Ohio		20 Oklahoma		21 Pennsylvania		22 Rhode Island		23 Tennessee		24 Texas		25 Virginia		26 Washington		27 Alaska, Hawaii and Puerto Rico		Totals	Examined—Passed	Examined—Failed	Percentage—Failed	Number of Boards Examined by	Marginal Number
	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F						
ARGENTINA																																																												
1 Universidad Nacional de Buenos Aires											0	1					0	2	0	2													0	1																					6	0	6	100.0	4	1
AUSTRIA																																																												
2 Karl Franzens-Universität, Graz																																	0	2													1	0					1	0	4	2	2	50.0	3	2
3 Leopold Franzens-Universitat, Innsbruck	0	1									0	1							0	1													1	1											1	0									6	2	4	66.6	5	3
4 Universitat Wien	2	1	5	0	1	2																	0	1					1	0			17	32															0	1	2	0			65	28	37	56.9	8	4
BELGIUM																																																												
5 Universite Libre de Bruxelles																																	1	0																					1	1	0	0.0	1	5
6 Université de Liege																																	0	2																					2	0	2	100.0	1	6
BRAZIL																																																												
7 Faculdade de Medicina de Porto Alegre											0	1																																											1	0	1	100.0	1	7
BURMA																																																												
8 University of Rangoon	1	0																																																					1	1	0	0.0	1	8
CHILE																																																												
9 Universidad de Chile, Santiago	1	0																															1	1																					3	2	1	33.3	2	9
CHINA																																																												
10 Peiping Union Medical College																																																					1	1	2	1	1	50.0	1	10
11 West China Union University, Chengtu																					1	0																																	1	1	0	0.0	1	11
12 Pennsylvania Medical School, Shanghai																																	0	1															0	1			2	1	5	2	3	60.0	3	12
13 Aurora University, Shanghai	1	0																																																					1	1	0	0.0	1	13
14 Cheeloo University, Shantung																																	1	0																					1	1	0	0.0	1	14
COLOMBIA																																																												
15 Universidad Nacional, Bogotá											1	0																																											1	1	0	0.0	1	15
16 Universidad de Cartagena																																	1	1																					2	1	1	50.0	1	16
CUBA																																																												
17 Universidad de la Habana	1	1							3	1	3	14							1	0													2	3																			1	0	30	11	19	63.3	6	17
CZECHOSLOVAKIA																																																												
18 Univerzita Komenského, Bratislava																																	3	3			1	0			1	0													8	5	3	37.5	3	18
19 Masarykova Universita, Brno																																	0	1																					1	0	1	100.0	1	19
20 Deutsche Universität, Prag	1	1			0	1			1	0	2	1					0	1															5	16																					29	9	20	69.0	6	20
21 Universität Karlova, Praha	1	0			0	1					1	0																					5	5			1	0											1	0					15	9	6	40.0	6	21
DENMARK																																																												
22 Københavns Universitet	1	0															1	0																																					2	2	0	0.0	2	22
DOMINICAN REPUBLIC																																																												
23 Universidad de Santo Domingo																																	0	2									0	1									3	0	6	3	3	50.0	3	23
ECUADOR																																																												
24 Universidad Central, Quito	0	1									1	0																																											2	1	1	50.0	2	24
EGYPT																																																												
25 Egyptian University, Cairo	1	0																																																					1	1	0	0.0	1	25
EL SALVADOR																																																												
26 Universidad de El Salvador	0	1																	0	1													0	1																					3	0	3	100.0	3	26
ENGLAND																																																												
27 University of Birmingham																											1	0																											1	1	0	0.0	1	27
28 University of Liverpool																																									1	0													1	1	0	0.0	1	28
29 University of London	1	0																	1	0									1	0			2	0																					5	5	0	0.0	4	29
30 Victoria University of Manchester	1	0																																																					1	1	0	0.0	1	30
31 University of Oxford									1	0																							0	1																					2	1	1	50.0	2	31
32 Licentiate of the Royal College of Physicians of London and Member of the Royal College of Surgeons of England											1	0															1	0					2	1																					5	4	1	20.0	3	32
ESTONIA																																																												
33 Tartu Ulikool																			0	1													0	1																					2	0	2	100.0	2	33

	FINLAND																												
34	Helsingfors Universitet										0 1													1	0	1	100.0	1	34
	FRANCE																												
35	Universite d'Aix Marseille	0 1														1 0								2	1	1	50.0	2	35
36	Universite de Lille															0 1								1	0	1	100.0	1	36
37	Université de Montpellier															0 2						1 0		3	1	2	66.7	2	37
38	Universite de Paris		1 0									1 0				4 3								9	6	3	33.3	3	38
	GERMANY																												
39	Friedrich Wilhelm Universitat Berlin	1 1	1 0	1 0						1 1						6 15		1 0						28	11	17	60.7	6	39
40	Rheinische Friedrich Wilhelms Universität Bonn	0 1														1 1								3	1	2	66.7	2	40
41	Schlesische Friedrich Wilhelms-Universität Breslau	1 0					0 2									1 5								9	2	7	77.8	3	41
42	Johann Wolfgang Goethe Universität Frankfurt am Main						0 1									1 1							1 0	4	2	2	50.0	3	42
43	Friedrich Alexanders Universität, Erlangen															2 1								3	2	1	33.3	1	43
44	Albert Ludwigs Universität Freiburg	1 1								0 1						1 0								4	2	2	50.0	3	44
45	Hessische Ludwigs-Universität Giessen						1 1																	2	1	1	50.0	1	45
46	Georg August Universität Gottingen																1 0							1	1	0	0.0	1	46
47	Vereinigten Friedrichs Universität Halle-Wittenberg															1 0								1	1	0	0.0	1	47
48	Hamburgische Universität	1 0						0 1								1 2							1 0	4	2	2	50.0	3	48
49	Universität Heidelberg						1 3									2 2					1 0			9	4	5	55.6	3	49
50	Thüringische Landesuniversität Jena															0 2								2	0	2	100.0	1	50
51	Christian Albrechts-Universität Kiel															1 1								2	1	1	50.0	1	51
52	Universität Koln															1 5								6	1	5	83.3	1	52
53	Albertus Universität Konigsberg						0 1									0 1								2	0	2	100.0	2	53
54	Universität Leipzig															3 4								7	3	4	57.1	1	54
55	Ludwig Maximilians Universität Munchen								0 1							1 3								5	1	4	80.0	2	55
56	Westfälische Wilhelms-Universität Munster						1 0									1 0								2	2	0	0.0	2	56
57	Universität Rostock															0 2								2	0	2	100.0	1	57
58	Kaiser Wilhelms Universität Strassburg															1 0								1	1	0	0.0	1	58
59	Eberhard Karls Universität Tubingen															2 1								3	2	1	33.3	1	59
60	Julius-Maximilians-Universität Wurzburg															0 4							1 0	5	1	4	80.0	2	60
	GREECE																												
61	National University of Athens						1 1			0 1	1 1					1 5				1 0				12	4	8	66.7	5	61
	HAITI																												
62	Ecole Nationale de Medecine Port-au Prince						2 2																	4	2	2	50.0	1	62
	HUNGARY																												
63	Magyar Királyi Pázmány Petrus Tudományegyetem Budapest	2 3					3 3			1 0	0 2	0 1		1 1		2 6		2 0				0 1		28	11	17	60.7	9	63
64	Magyar Királyi Tisza István Tudományegyetem Debrecen															2 1								3	2	1	33.3	1	64
65	Magyar Királyi Erzsébet Tudományegyetem Pecs			1 0			0 1									3 5						1 0		11	5	6	54.5	4	65
66	Magyar Királyi Ferencz József Tudományegyetem Szeged				1 0		0 1			0 1						1 1								5	2	3	60.0	4	66
	ICELAND																												
67	University of Iceland									1 0								1 0						2	2	0	0.0	2	67
	INDIA																												
68	University of Calcutta															1 0								1	1	0	0.0	1	68
	IRAN																												
69	Madresseh Teb Teheran															0 4								4	0	4	100.0	1	69
	IRELAND																												
70	National University of Ireland	1 0			2 0		1 1			2 0			1 0			7 5		1 0			1 0			22	16	6	27.3	8	70
71	University of Dublin	1 0																						1	1	0	0.0	1	71
72	Licentiate of the Royal College of Physicians and Licentiate of the Royal College of Surgeons	0 2					0 1																	3	0	3	100.0	2	72
	ITALY																												
73	Regia Università di Bari															0 1								1	0	1	100.0	1	73
74	Regia Università di Bologna			0 1			0 1				0 1					2 15								20	2	18	90.0	4	74
75	Regia Università di Catania															0 1								1	0	1	100.0	1	75
76	Regia Università di Firenze				1 0											0 1	
0 1		1 0			4	2	2	50.0	4	76
77	Regia Università di Genova	1 0														3 2								6	4	2	33.3	2	77
78	Regia Università di Milano	1 0																						1	1	0	0.0	1	78
79	Regia Università di Modena															0 1								1	0	1	100.0	1	79
80	Regia Università di Napoli	1 1					1 1		1 1		0 1				1 0	3 11								22	7	15	68.2	6	80
81	Regia Università di Padova	1 0		1 0												1 0				0 1				4	3	1	25.0	4	81
82	Regia Università di Pavia															0 1								1	0	1	100.0	1	82
83	Regia Università di Palermo	0 1					1 1									1 3								7	2	5	71.4	3	83
84	Regia Università di Perugia					0 1																		1	0	1	100.0	1	84
85	Regia Università di Pisa	1 0														1 2								4	2	2	50.0	2	85
86	Regia Università di Roma						0 1				1 2			1 1		2 6				1 0	1 0			16	6	10	62.5	6	86
87	Regia Università di Siena															0 1								1	0	1	100.0	1	87
88	Regia Università di Torino	2 1														2 2								7	4	3	42.9	2	88
	LEBANON																												
89	American University of Beirut				1 0											2 1								4	3	1	25.0	2	89

TABLE 30—*Foreign Trained Physicians Examined for Medical Licensure in the United States, 1949—Continued*

	SCHOOL	California		Colorado		Connecticut		Dist of Columbia		Florida		Illinois		Kansas		Maine		Maryland		Massachusetts		Minnesota		Mississippi		Missouri		New Hampshire		New Jersey		New Mexico		New York		North Dakota		Ohio		Oklahoma		Pennsylvania		Rhode Island		Tennessee		Texas		Virginia		Washington		Alaska, Hawaii and Puerto Rico		Totals	Examined—Passed	Examined—Failed	Percentage—Failed	Number of Boards Examined by	Marginal Number
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		23		24		25		26		27							
		P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F						
	LITHUANIA																																																												
90	Vytauto Didziojo Universiteto, Kaunas					1	0					2	6					0	1															1	5			1	0																			17	5	12	70.6	5	90
	MEXICO																																																												
91	Universidad de Guadalajara	1	2																																																							3	1	2	66.7	1	91
92	Universidad Nacional, México	3	4			0	2					0	1																																											0	1	11	3	8	72.7	4	92
93	Escuela de Medicina, Oaxaca	0	2																																																							2	0	2	100.0	1	93
	NETHERLANDS																																																												
94	Universiteit van Amsterdam																																	2	0																							2	2	0	0.0	1	94
95	Rijks-Universiteit te Leiden	1	0																																																							1	1	0	0.0	1	95
96	Rijks-Universiteit te Utrecht																																	0	1																							1	0	1	100.0	1	96
	NORWAY																																																												
97	Universitet Oslo																																	0	1																							1	0	1	100.0	1	97
	PHILIPPINES																																																												
98	University of Santo Tomas, Manila																																									1	0															1	1	0	0.0	1	98
	POLAND																																																												
99	Uniwersytet Jagiellónski Cracow																	1	0															3	4																							8	4	4	50.0	2	99
100	Marie Curie Uniwersytet, Lublan																													0	1																											1	0	1	100.0	1	100
101	Uniwersytet Jana Kazimierza, Lwów																	0	1															5	6																							12	5	7	58.3	2	101
102	Uniwersytet Poznánski Poznán											0	1																					1	3																							5	1	4	80.0	2	102
103	Uniwersytet Jozefa Pilsudskiégo, Warszawa																	0	1															4	7																							12	4	8	66.7	2	103
104	Uniwersytet Stefana Batorego, Wilno																																	4	4																							8	4	4	50.0	1	104
	RUMANIA																																																												
105	Universitatea din Bucuresti							1	0																																																	1	0	1	100.0	1	105
106	Universitatea din Cluj																													1	1			1	0			0	1																	1	0	5	3	2	40.0	4	106
	SCOTLAND																																																												
107	Polish School of Medicine, Edinburgh																													1	0			0	1																							2	1	1	50.0	2	107
108	University of Edinburgh																																									1	0															1	1	0	0.0	1	108
109	University of Glasgow																	1	0															1	0																							2	2	0	0.0	2	109
110	Licentiate of the Royal College of Physicians and Surgeons of Edinburgh, and Licentiate of the Royal Faculty of Physicians and Surgeons of Glasgow									3	0									1	0									1	1			9	9			1	0							1	0											26	16	10	38.5	6	110
	SOUTH AFRICA, UNION OF																																																												
111	University of the Witwatersrand, Johannesburg																																	1	0																							1	1	0	0.0	1	111
	SPAIN																																																												
112	Universidad de Barcelona																																	1	0																					1	0	2	2	0	0.0	2	112
113	Universidad de Madrid																																																							0	1	1	0	1	100.0	1	113
114	Universidad de Salamanca											0	1																																													1	0	1	100.0	1	114
115	Universidad de Valencia	0	2							1	0																																															3	1	2	66.7	2	115
	SWEDEN																																																												
116	Karolinska Institutet Stockholm	0	1																																																							1	0	1	100.0	1	116
	SWITZERLAND																																																												
117	Universität Basel					1	0					0	1					0	1															6	1																							10	7	3	30.0	4	117
118	Universität Bern											0	1					1	0															4	3			1	0			1	0															11	7	4	36.3	5	118
119	Université de Genevé																																	8	5																							13	8	5	38.4	1	119
120	Université de Lausanne									1	1	1	0							0	2			0	1									2	6			1	0																			15	5	10	66.7	6	120
121	Universität Zurich	2	2																															2	8																							14	4	10	71.4	2	121
	UNION OF SOCIALIST SOVIET REPUBLICS																																																												
122	University Baku																																	0	1																							1	0	1	100.0	1	122
123	Second Moscow Medical Institute																																	0	1																							1	0	1	100.0	1	123
124	Severo Kavka Medical Institute Rostov on the-Don															1	1																	0	1																							3	1	2	66.7	2	124
	YUGOSLAVIA																																																												
125	Beogradskog Universiteta											0	1																					0	1																							2	0	2	100.0	2	125
126	Zagrebaskog Universiteta											0	1																																													1	0	1	100.0	1	126
	Totals	65		7		13		6		13		78		1		5		20		20		1		4		1		2		12		1		435		1		12		1		8		5		2		4		3		4		14		737					
	Totals—Examined—Passed	34		7		6		5		10		24		0		2		9		5		1		1		1		2		7		1		161		1		11		0		7		4		2		3		1		4		10			319				
	Totals—Examined—Failed	31		0		7		1		3		53		1		3		11		15		0		3		0		0		5		0		274		0		1		1		1		1		0		1		2		0		4				418			
	Percentage Failed	47.7		0.0		53.8		16.7		23.1		67.9		100.0		60.0		55.0		75.0		0.0		75.0		0.0		0.0		41.7		0.0		63.0		0.0		8.3		100.0		12.5		20.0		0.0		25.0		66.7		0.0		28.6					56.7		
	Marginal Number	1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		23		24		25		26		27							

P—Passed F—Failed

a summary of existing requirements and that the licensure of all physicians is one of the "State's Rights" and physicians are urged to supplement the information contained in this table by direct communication with the licensing boards It should further be understood that each application is considered individually by the boards, so that this summary does not absolutely guarantee licensure in those states who have indicated foreign-trained physicians are eligible for licensure

Table 30 records the number of graduates of faculties of medicine abroad examined for medical licensure in the United States and its territories and possessions in 1949 The figures include both American and foreign-born physicians There were graduates of 123 foreign medical schools and three licensing corporations represented, as compared with 102 in the previous year Schools in 44 countries were represented A total of 737 physicians were examined by 25 states, the District of Columbia, Alaska, Hawaii and Puerto Rico Of the 737 physicians examined, 319 passed and 418 (56 7 per cent) failed This extremely high percentage of failures is a primary factor in the cautious attitude of the licensing boards in admitting these graduates to the licensing examinations

Table 31—*Physicians Examined on the Basis of Credentials Obtained in Countries Other Than the United States and Canada, 1930-1949*

Year	Number Examined	Passed	Percentage Failed
1930	167	92	44.9
1931	158	91	42 4
1932	182	96	47 3
1933	200	129	35.5
1934	285	170	40 2
1935	437	303	30 7
1936	588	382	35 0
1937	920	637	30.8
1938	1,164	716	38.5
1939	1 691	839	50 4
1940	2 088	948	54 7
1941	1 717	698	59.3
1942	1 630	890	45 4
1943	1 031	518	49 8
1944	691	325	53 0
1945	475	209	56 0
1946	495	221	55.3
1947	601	283	52.9
1948	639	311	51.3
1949	737	319	56 7
Totals	15,896	8 177	48 6

Graduates of the University of Vienna represented the largest group from any one school Sixty-five graduates of this school were examined in eight states, 37 of whom failed The greatest number examined by anyone state was 435 in New York, of whom 161 passed and 274 (63 per cent) failed California examined 65, of whom 47 7 per cent failed, and Illinois examined 78 with 67 9 per cent failures Other states examined 20 or less

Table 31 presents the number of graduates of faculties of medicine abroad examined for medical licensure in the United States in 20 years (1930-1949) In 1936 the number of foreign trained physicians began to increase and by 1940 there were over three times as many as were tested in 1936 In 1949, 98 more foreign graduates were examined than in 1948 During the period 1930-1949 a total of 15,896 graduates of foreign schools were examined, of whom 8,177 passed and 48 6 per cent failed At no time in this 20 year period did fewer than 30 7 per cent fail

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Eighteen states, the District of Columbia and Alaska have adopted by legislative action basic science requirements underlying the practice of the healing art A basic science law provides for the establishment of a board of examiners and requires that each person who desires to practice the healing arts appear before the board and demonstrate his knowledge of the basic sciences The basic science boards have no licensing powers A certificate in the basic sciences is a prerequisite to licensure

Connecticut and Wisconsin were the first states to adopt basic science legislation Laws were passed in these two states in 1925 Texas was added to the group in 1949 The states and the year of enactment of their basic science laws are recorded in table 32

Table 32—*States Having Basic Science Laws and Year of Enactment*

Alaska	1946	Nebraska	1927
Arizona	1936	New Mexico	1942
Arkansas	1929	Oklahoma	1937
Colorado	1937	Oregon	1933
Connecticut	1925	Rhode Island	1940
District of Columbia	1929	South Dakota	1939
Florida	1939	Tennessee.	1943
Iowa	1936	Texas	1949
Michigan	1937	Washington	1927
Minnesota	1927	Wisconsin	1925

Table 33—*Subjects Included in Basic Science Examinations*

	Examinations Required in							
	Anatomy	Bacteriology	Chemistry	Diagnosis	Hygiene	Pathology	Physiology	Public Health
Alaska	+	+	+		+	+	+	
Arizona	+	+	+		+	+	+	
Arkansas	+	+	+			+	+	
Colorado	+	+	+			+	+	
Connecticut	+			+	+	+	+	
Dist. Columbia	+	+	+			+	+	
Florida	+	+	+			+	+	
Iowa	+	+	+		+	+	+	
Michigan	+	+	+		+	+	+	+
Minnesota	+	+	+		+	+	+	
Nebraska	+	+	+		+	+	+	
New Mexico	+	+	+			+	+	
Oklahoma	+	+	+			+	+	
Oregon	+		+		+	+	+	
Rhode Island	+	+	+			+	+	
South Dakota	+	+	+			+	+	
Tennessee	+	+	+			+	+	
Texas	+	+	+		+	+	+	+
Washington	+		+		+	+	+	
Wisconsin	+			+		+	+	

The subjects in which examinations are conducted are shown in table 33 These subjects are specified by statute The examining boards have no authority to add any subjects or to refrain from examining in any subjects, although in some states provision is made for certification without examination, by waiver or exemption The credentials acceptable for certification by this method are listed in table 34 All 20 boards examine in anatomy, pathology and physiology, 18 examine in chemistry, 16 in bacteriology, 10 in hygiene, 2 in diagnosis and 2 in public health

The results of examinations held and the number of certificates issued on the basis of reciprocity, endorsement, waiver or exemption during 1949 are presented in tables 35 and 36 A candidate in applying for a basic science certificate is not required by law to mention his school of practice However, by checking the biographic records of physicians and medical students on file in the office of the American Medical Association and various directories it has been possible to determine the branch of the healing art represented by the majority of candidates Thus it has been possible to tabulate the figures in four groups, namely, physicians and medical students, osteopaths, chiropractors and unclassified applicants The last category includes those for whom it was not possible to determine the profession represented In Rhode Island doctors of dentistry and in Connecticut naturopaths are included in the unclassified group It is probable that many in this unclassified group include osteopaths, chiropractors and also naturopaths who have not been identified by the reference data available

TABLE 34—*Reciprocity, Endorsement, Waiver or Exemption Policies of Basic Science Boards*

	Credentials Accepted
Alaska	Certificate of National Board of Medical Examiners and license issued in states with which the Alaska Board of Medical Examiners reciprocates
Arizona	(1) Certificate of basic science boards that examine in same subjects as does Arizona (2) Examinations in same subjects as Arizona requires of other basic science boards accepted Applicant required to take examination in other subjects (3) Applicants from states having basic science boards accepted if license was issued prior to enactment of basic science law
Arkansas	Certificate of basic science boards of Colorado, Minnesota, Oregon, South Dakota, Tennessee, Texas and Wisconsin and of the National Board of Medical Examiners
Colorado	(*a*) Certificates obtained by examination from the following basic science boards Arizona, Arkansas, District of Columbia, Iowa, Minnesota, Nebraska, New Mexico, Oklahoma, Oregon, Rhode Island, South Dakota, Tennessee (*b*) Applicants who present basic science certificates from Connecticut and Wisconsin boards are examined in chemistry and bacteriology
Connecticut	No reciprocity Board may in its discretion waive examination
District of Columbia	Board may exempt an applicant and accept in lieu of examination proof that the applicant has passed before a basic science or licensing board an examination in subjects required by District of Columbia basic science board Diplomates of the National Board of Medical Examiners may also be exempt from examination
Florida	None
Iowa	Credentials equal to those of Iowa basic science board
Michigan	Certificates from Minnesota and Nebraska basic science boards
Minnesota	(*a*) Certificate of basic science boards of Arkansas, Colorado, Michigan, Nebraska, Oklahoma, Oregon and Tennessee (*b*) Applicants from Arizona, South Dakota, Texas and New York (subsequent to 1925) considered on individual basis (*c*) Credit given for Alabama's licensing board's grades in physiology, chemistry and anatomy Wisconsin's basic science board's grades in anatomy, pathology and physiology and New York's licensing board's grades prior to 1925 in anatomy, chemistry, hygiene and physiology (*d*) Certificate of National Board of Medical Examiners
Nebraska	Certificate issued by waiver to applicants who have passed a written examination before another basic science board or licensing board in the six subjects required by Nebraska basic science board
New Mexico	None
Oklahoma	A certificate of ability in the basic sciences is a prerequisite to examination for license (but not to license by reciprocity) by the Oklahoma Board of Medical Examiners This certificate may be issued on the basis of exemption
Oregon	Certificate in the basic sciences obtained by examination in Arkansas, Colorado, Iowa, Minnesota, Nebraska, South Dakota, Tennessee, Texas and Wisconsin
Rhode Island	None
South Dakota	Certificate of basic science boards of Arizona, Arkansas, Colorado, Iowa, Minnesota, Nebraska, Oklahoma, Oregon, Tennessee, Texas and Wisconsin
Tennessee	(*a*) Certificate of basic science boards of Arizona, Arkansas, Colorado, District of Columbia, Minnesota, Nebraska, Oklahoma, Oregon, South Dakota, Texas, Virginia and Wisconsin (*b*) Granting of a certificate by waiver by accepting grades in required subjects earned by examination before a medical examining board or the National Board of Medical Examiners is handled on an individual basis
Texas	Certificate of basic science boards of Arizona, Arkansas, Colorado, Iowa, Minnesota, Nebraska, Oklahoma, Oregon, South Dakota and Tennessee
Washington	None
Wisconsin	(*a*) Certificate of basic science boards of Arkansas, Iowa, Oregon, South Dakota and Tennessee (*b*) Certificate attesting to service in the Medical Corps of the Armed Forces of the United States (*c*) License to practice medicine or osteopathy in another state provided applicant has practiced for at least se was granted

TABLE 35—*Applicants Examined in Basic Sciences, 1949*

	Physicians and Medical Students		Osteopaths		Chiropractors		Unclassified and Others		Total Examined	Passed	Failed	Percentage Failed
	P	F	P	F	P	F	P	F				
Alaska	3	0	0	1	0	0	0	0	4	3	1	25.0
Arizona	52	0	2	0	1	0	10	0	89	65	24*	27.0
Arkansas	108	2	0	0	5	6	0	0	121	113	8	6.6
Colorado	131	13	19	12	3	8	6	5	197	159	38	19.3
Connecticut	139	2	2	0	9	12	3	2	169	153	16	9.5
Dist of Columbia	16	5	0	0	0	0	0	0	21	16	5	23.8
Florida	351	84	28	35	14	32	37	38	619	430	189	30.5
Iowa	155	95	216	180	246	328	206	277	1,703	823	880	51.7
Michigan	319	78	4	5	10	9	13	9	447	346	101	22.6
Minnesota	227	0	48	0	31	0	66	0	685	372	313*	45.7
Nebraska	76	21	9	3	0	0	0	0	109	85	24	22.0
New Mexico	60	1	15	2	0	0	6	0	84	81	3	3.6
Oklahoma	65	2	0	3	0	0	4	3	77	69	8	10.4
Oregon	98	21	9	27	5	3	15	31	209	127	82	39.2
Rhode Island **	35	1	0	0	0	0	23	1	60	58	2	3.3
South Dakota	36	10	3	3	1	2	4	8	67	44	23	34.3
Tennessee	200	33	0	0	0	0	14	2	249	214	35	14.1
Texas	72	1	9	5	0	0	0	0	87	81	6	6.9
Washington	231	12	6	2	0	2	0	0	253	237	16	6.3
Wisconsin	166	11	0	1	14	66	0	0	258	180	78	30.2
Totals—Examined	2,932		649		807		783		5,508			
Totals—Passed	2,540		370		339		407			3,656		
Totals—Failed	392		279		468		376				1,852	
Percentage Failed	13.4		42.9		57.9		48.0					33.6

* Nature of practice undeterminable since names of failures not supplied

** Figures in unclassified column refer to doctors of dentistry

TABLE 36—*Basic Science Certificates Issued by Examination, Reciprocity and Endorsement, 1949*

	Examination					Reciprocity, Endorsement, Exemption or Waiver					
	Physicians and Medical Students	Osteopaths	Chiropractors	Unclassified and Others	Totals	Physicians and Medical Students	Osteopaths	Chiropractors	Unclassified and Others	Totals	Registered
Alaska	3	0	0	0	3	13	0	4	0	17	20
Arizona	52	2	1	10	65	37	48	23	31	139	204
Arkansas	108	0	5	0	113	42	7	4	0	53	166
Colorado	131	19	3	6	159	36	28	27	22	113	272
Connecticut	139	2	9	3	153	0	0	0	0	0	153
District of Columbia	16	0	0	0	16	112	0	0	0	112	128
Florida	351	28	14	37	430	0	0	0	0	0	430
Iowa	155	216	246	206	823	227	23	11	16	277	1,100
Michigan	319	4	10	13	346	38	14	13	61	126	472
Minnesota	227	48	31	66	372	124	0	2	16	142	514
Nebraska	76	9	0	0	85	0	0	0	0	0	85
New Mexico	60	15	0	6	81	0	0	0	0	0	81
Oklahoma	65	0	0	4	69	0	0	0	0	0	69
Oregon	98	9	5	15	127	58	25	38	32	153	280
Rhode Island *	35	0	0	23	58	0	0	0	0	0	58
South Dakota	36	3	1	4	44	8	11	2	0	21	65
Tennessee	200	0	0	14	214	108	0	0	0	108	322
Texas	72	9	0	0	81	0	0	0	0	0	81
Washington	231	6	0	0	237	0	0	0	0	0	237
Wisconsin	166	0	14	0	180	137	1	81	0	219	399
Totals	2,540	370	339	407	3,656	940	157	205	178	1,480	5,136

* Figures in unclassified column refer to doctors of dentistry

There were 5,508 candidates examined by the 20 boards in operation in 1949 The numbers examined in the various groups and the total examined by each board are shown in table 35 The majority (2,932) represented physicians or medical students, 649 were osteopaths, 807 chiropractors and 783 were placed in the unclassified group Of all applicants, 33 6 per cent failed Among physicians and medical students 13 4 per cent failed, osteopaths 42 9 per cent, chiropractors 57 9 per cent and unclassified 48 per cent Among those who passed there were 2,540 physicians and medical students, 370 osteopaths, 339 chiropractors and 407 unclassified candidates The basic science board of Iowa and Florida examined the greatest number of applicants Iowa examined 1,703 and Florida 619 Michigan and Minnesota tested more than 400 and Oregon, Tennessee, Washington and Wisconsin more than 200 The percentage of failures for physicians and medical students is greater than the extent of failures before the state examining boards

Table 37—*Total Candidates for Basic Science Certification, 1927-1949*

		Physicians and Medical Students						Other Practitioners					
	No of Boards	Examined	Passed	Failed	Percentage Failed	Endorsement	Total Certified	Examined	Passed	Failed	Percentage Failed	Endorsement	Total Certified
1927	6	305	279	26	8.5	26	305	22	15	7	31 8	1	16
1928	6	646	586	60	9.3	19	605	59	31	28	47 5	0	31
1929	7	668	610	58	8 7	75	685	66	31	35	53 0	0	31
1930	7	685	606	79	11 5	118	724	78	30	48	61.5	4	34
1931	7	680	586	94	13.8	141	727	107	48	59	55 1	0	48
1932	7	657	590	67	10 2	106	696	78	44	34	43 6	12	56
1933	8	601	527	74	12.3	121	648	60	30	30	50 0	10	40
1934	9	815	725	90	11 0	127	852	51	26	25	49 0	11	37
1935	10	882	761	121	13 7	110	871	74	33	41	55 4	4	37
1936	10	1 032	891	141	13 7	230	1 121	66	26	40	60 6	13	39
1937	12	1,231	1 061	170	13 8	192	1,253	113	41	72	63 7	10	51
1938	12	1 168	1 026	142	12.2	267	1 293	158	70	88	55 7	26	96
1939	14	1 141	1 013	128	11.2	727	1 740	218	97	121	55.5	294	391
1940	16	1,303	1 140	163	12.5	324	1 464	280	153	127	43 9	22	175
1941	17	1 768	1,560	208	11.8	280	1,840	356	191	165	46.3	78	269
1942	17	1 725	1 476	249	14 4	213	1 689	497	249	248	49.9	91	340
1943	18	2 330	2 098	232	10 0	296	2 394	389	211	178	45.8	86	297
1944	18	2 284	1 868	416	18.2	222	2 090	465	276	189	40 6	87	363
1945	18	2 570	2 140	430	16 6	412	2 558	397	193	204	51 4	172	365
1946	19	2 937	2,391	546	18 7	1,308	3 699	313	167	146	46 6	166	333
1947	19	3 132	2 405	727	23 2	771	3 176	406	228	178	43.8	189	417
1948	19	3 000	2 601	399	13.3	1 069	3 670	827	437	390	47 1	349	786
1949	20	2 932	2,540	392	13 4	940	3 480	2,239	1 116	1 123	50 2	540	1 656
Totals		34 498	29 486	5 012	14 5	8 094	37 580	7 319	3 743	3 576	48.9	2 160	5 903

It is the policy of the Arizona and Minnesota boards in reporting results of its examinations to omit the names of applicants who fail examinations The number who fail are therefore recorded only in the total column

Physicians or medical students were tested in all states osteopaths by 16 boards and chiropractors by 12 states

Twelve boards issued 1 480 certificates by reciprocity, endorsement waiver or exemption The number of successful applicants (5,136) registered by examination and by endorsement are recorded in table 36 Included in the total certified were 3 480 physicians, 527 osteopaths 544 chiropractors and 585 unclassified

In table 37 is included the number of candidates examined and certified by basic science boards for each year since and including 1927 The number registered in 1949 was 870 greater than the previous year and represents the largest number to appear before basic science boards since their inception

In the 23 year period shown in this table, 34,498 physicians or medical students were examined, of whom 29,486 were successful in these examinations In the same period 7,319 other practitioners were tested and 3,743 were successful Of the physicians and medical students examined in 23 years, 14 5 per cent failed and 48 9 per cent of the other practitioners were unsuccessful There were in this same period 8,094 physicians and 2,160 others certified without examination By both examination and endorsement there were 37,580 physicians and medical students issued certificates in 23 years and 5,903 certificates were issued to other practitioners

The fees for examination in the basic sciences in the states requiring such certification are as follows

Alaska	$25	Nebraska	$10[2]
Arizona	20	New Mexico	25
Arkansas	10	Oklahoma	15[3]
Colorado	*25*	*Oregon*	*10*
Connecticut	10	Rhode Island	10
District of Columbia	25	South Dakota	15
Florida	10	Tennessee	10[4]
Iowa	10	Texas	15[1]
Michigan	35	Washington	10
Minnesota	15[1]	Wisconsin	10[5]

1 Reciprocity $25 2 Waiver $15 3 Reciprocity $50
4 Reciprocity $5 5 Reciprocity $15

Examinations are given in most instances twice a year, although a number of boards hold examinations quarterly

The principle of basic science legislation is to provide a means of insuring that all who seek licensure to care for sick and injured persons shall first possess a reasonable knowledge of the sciences fundamental to the healing art The enforcement of such laws affects mostly the group classified as "other practitioners" This is particularly significant since the testing is made by nonmedical examiners The results would seem to indicate that, in general, practitioners other than physicians are inadequately equipped in the fundamentals of medicine

The present executive officer of each of the 20 basic science boards is as follows

Arizona—Mr Francis A Roy Science Hall University of Arizona Tucson
Arkansas—Mr L E Gebauer, 1002 Donaghey Building Little Rock.
Colorado—Esther B Starks D O 1459 Ogden Street Denver
Connecticut—Mr C. M Bakewell 110 Whitney Avenue, New Haven.
District of Columbia—Dr Daniel L Seckinger 4130 East Municipal Building Washington
Florida—Mr M W Emmel University of Florida Gainesville.
Iowa—Dr Ben H Peterson Coe College Cedar Rapids
Michigan—Miss Floise LeBeau 101 North Walnut Street Lansing
Minnesota—Dr Raymond N Bieter 105 Millard Hall University of Minnesota Minneapolis 14
Nebraska—Mr Oscar F Humble Room 1009 State Capitol Building Lincoln 9
New Mexico—Mrs Marguerite Cantrell P O Box 1522, Santa Fe.
Oklahoma—Dr Frank C Gallagher 813 Braniff Building Oklahoma City
Oregon—Dr C D Byrne University of Oregon Eugene.
Rhode Island—Mr Thomas B Casey 366 State Office Building Providence
South Dakota—Dr G M Evans 310 East 15th Street Yankton
Tennessee—Dr O W Hyman 874 Union Avene Memphis
Texas—Bro Raphael Wilson 306 Nalle Bldg Austin
Washington—Mr Edward C Dohm, Olympia
Wisconsin—Mr William H Barber Watson and Scott Streets Ripon.
Alaska—Dr C Earl Albrecht Box 1931 Juneau

NATIONAL BOARD OF MEDICAL EXAMINERS

The medical licensing boards of 45 states, the District of Columbia, the territories of Alaska, Hawaii and Puerto Rico and the Canal Zone recognize the certificate of the National Board of Medical Examiners as an adequate qualification for a medical license. Florida, Montana and Wisconsin *do not recognize the* National Board certificate

The licensing board of Louisiana exempts diplomates of the National Board from the state examination if they have also been licensed in some other state with which Louisiana has established reciprocal relations The laws or regulations of the licensing boards in Hawaii, Illinois, Rhode Island and Wyoming require diplomates of the National Board to take an oral examination A brief supplemental examination is required in Maine and in Michigan The states, territories and possessions which will endorse the National Board certificate are recorded in table 38

In addition to the boards of medical licensure, 18 of the states, the District of Columbia and Alaska have established separate examining boards in the basic sciences The laws of nine of these boards are sufficiently broad to enable them to accept the examinations of the National Board in lieu of their own These include the boards of Alaska, Arkansas, Connecticut, Iowa, Minnesota, Oklahoma, Tennessee and the District of Columbia The Nebraska Board accepts the National Board's examinations in most instances after reviewing the answer papers Diplomates are required to take an examination in the basic sciences before obtaining a medical license in Arizona, Colorado, Florida, Michigan, New Mexico, Oregon, Rhode Island, South Dakota, Texas, Washington and Wisconsin

Diplomates of the National Board are admitted to the final examination of the Examining Board in England, of the Triple Qualification Board of Scotland and of the Conjoint Board in Ireland The National Board admits directly to parts II and III of its examinations the diplomates of these boards, provided they hold a degree in medicine from an acceptable university Diplomates are also exempt from some of the qualifications required by the Mayo Foundation for Medical Education and Research

The board's examinations are also accepted by many medical schools as part of their own examination and promotion procedures At some of the schools the students are required to pass part I at the end of the second year and part II at the end of the fourth year Other schools require only that part II be passed by the end of the fourth year In addition, there are a few schools at which those students who voluntarily take and pass the board's examinations, either in part I or part II, are excused from the corresponding final school examinations

Requirements for admission to the National Board examination include a standard four year high school course, two years of acceptable college work including courses in English, physics, chemistry and biology, and medical training satisfactorily completed in approved medical schools in the United States and Canada Graduates of the university medical schools of Great Britain and Ireland have been admitted to the examinations, provided these graduates have been licensed to practice in the country in which the school attended is located The National Board may also consider individually applicants who present credentials from other universities, the records of which have been adequately verified, with further evidence of having completed acceptable professional service in the United States and who have complied with the requirements of full citizenship in the United States At a meeting held in April 1950 the National Board voted to accept the list of foreign medical schools, dated Feb 7, 1950, prepared by the Council on Medical Education and Hospitals and the Executive Council of the Association of American Medical Colleges

Data regarding the examinations conducted and the issuance of certificates by the National Board are presented for the thirty-first consecutive year

The National Board was founded in 1915 by Dr W L Rodman, then president of the American Medical Association The first examination for certification was given in October 1916 From that date up to and including a test given in June 1921, eleven examinations were given and 268 candidates were certified The results of each examination during this period are given in table 39

Since 1922 the examination has been divided into three parts, which must be taken and completed in the following sequence part I, a written examination in each of the six fundamental medical sciences, part II, a written examination in five major clinical subjects, and part III, a clinical and practical examination in six major clinical divisions and their component subjects or subdivisions Parts I and II are given in approved medical schools throughout the United States and Canada, while part III is given under the direction of local subsidiary boards in 27 centers at times sufficiently frequent to accommodate all eligible candidates Examinations in parts I and II are held simultaneously in February, June and September An additional examination in part II only is held in April

The remainder of the tables enumerate the results of examinations in parts I, II and III for each calendar year since 1922, including those who passed and failed examinations and those certified

A candidate is eligible for part I who has met the premedical requirements and has completed successfully the first two years of work in an approved medical

TABLE 38—*Licensing Boards Endorsing the Certificate of the National Board of Medical Examiners*

Alabama
Alaska [3]
Arizona
Arkansas [3]
California
Canal Zone
Colorado
Connecticut [3]
Delaware
Dist of Columbia [3]
Georgia
Hawaii [1]
Idaho
Illinois [1]
Indiana
Iowa [3]
Kansas
Kentucky
Louisiana
Maine [2]
Maryland
Massachusetts
Michigan [3]
Minnesota [3]
Mississippi
Missouri
Nebraska [3]
Nevada
New Hampshire
New Jersey
New Mexico
New York
North Carolina
North Dakota
Ohio
Oklahoma [3]
Oregon
Pennsylvania
Puerto Rico
Rhode Island [1]
South Carolina
South Dakota
Tennessee [3]
Texas
Utah
Vermont
Virginia
Washington
West Virginia
Wyoming [1]

[1] Oral examination required
[2] Brief supplemental written examination required
[3] Examination in basic sciences accepted by state basic science board

TABLE 39—*National Board Examinations, 1916-1921*

Date		Total Examined	Failed	Percentage Failed
October	1916	10	5	50 0
June	1917	12	3	25 0
October	1917	28	6	21 4
January	1918	20	2	10 0
April	1918	23	5	21 7
December	1918	16	1	6 3
June	1919	52	1	1 9
February	1920	48	12	25 0
May	1920	60	14	23 3
February	1921	16	5	31.3
June	1921	40	3	7 5
Totals		325	57	17 5

school An incomplete examination is allowed candidates taking part I at the end of their second medical year in schools whose third year curriculum includes courses in one or two subjects of this part The examinations in the subjects not yet completed are postponed and may be taken at any examination period after the candidate has completed them in his medical school They are recorded in these tabulations under the heading "Incomplete Examinations" and are excluded from the calculations referring to the percentage of failures

A candidate is eligible for part II who has passed part I and has completed satisfactorily a four year medical course in an approved medical school

A candidate is eligible for part III who has passed parts I and II, received his medical degree and has satisfactorily completed an internship of one year in a hospital approved for such training by the American or Canadian medical associations or has served in a laboratory acceptable to the National Board

TABLE 40—*National Board Examinations in Part I, 1922-1949*

Date	Total Examinations	Passed	Incomplete	Failed	Percentage Failed
February 1949	534	441	38	65	11 1
June 1949	2 073	1 145	832	96	7 7
September 1949	1,210	751	373	82	10 9
Totals	3 823	2 337	1 243	243	9 4
1922	388	263	58	67	20 3
1923	507	349	77	81	18.8
1924	591	415	69	107	20 5
1925	608	400	50	158	28.3
1926	625	436	104	85	16.3
1927	702	452	159	91	16 8
1928	843	533	231	79	12.9
1929	1 096	675	331	90	11.8
1930	1 260	801	345	114	12 5
1931	1 277	755	425	97	11 4
1932	1 307	847	371	89	9.5
1933	1,234	782	316	136	14.8
1934	1 241	809	347	85	9 5
1935	1 264	785	410	69	8 1
1936	1,344	858	363	123	12.5
1937	1 435	871	415	149	14 6
1938	1 654	986	508	160	14 0
1939	1 733	1 048	460	225	17 7
1940	1 653	1 069	375	209	16.4
1941	1 640	1 087	346	207	16 0
1942	1,867	1,204	471	192	13.8
1943	2 656	1 441	962	253	14 9
1944	4 229	2,326	1 465	438	15.9
1945	3 865	2 106	1 475	284	11.8
1946	4 148	1 695	1 189	264	13.5
1947	3 514	1,844	1,352	318	14 7
1948	3 807	2 178	1,262	367	14 4
1949	3 823	2,337	1,243	243	9 4
Totals	49 311	29,352	15 179	4 780	14 0

Three examinations were given in part I in 1949 and four in part II while tests in part III were held at various times during the year

Tables 40 and 41 record the results of examinations given in parts I and II during 1949 and since 1922 The data shown represent examinations conducted rather than persons examined The figures include candidates who fail and are reexamined during the same year and those who pass parts I and II in the same year

During the year 1949, 3,823 examinations were given in part I, 2,337 passed and 243, or 9 4 per cent, failed There were 1,243 incomplete examinations given In part II, 1,737 examinations were held, 1,691 passed and 46 or 2 6 per cent failed Incomplete examinations are seldom given in this part There were none given in 1949

Since 1922 a total of 49 311 examinations have been given in part I and 24,967 in part II During this period 29,352 passed part I and 23,612 passed part II In 28 years there have been 4,780 failures in part I (14 per cent) and 1,309 (5 2 per cent) in part II The increasing acceptance by medical schools of the National Board's examinations is reflected in the totals in these two parts, particularly since 1943 The greatest number of examinations were given in 1944 and in part II in 1943

TABLE 41—*National Board Examinations in Part II, 1922-1949*

Date	Total Examinations	Passed	Incomplete	Failed	Percentage Failed
February 1949	228	216	0	12	5 2
April 1949	1 088	1,062	0	26	2 4
June 1949	324	317	0	7	2 1
September 1949	97	96	0	1	1 0
Totals	1 737	1,691	0	46	2.6
1922	109	90	0	19	17 4
1923	192	170	2	20	10.5
1924	267	227	0	40	15 0
1925	342	309	0	33	9 6
1926	381	334	1	46	12 1
1927	361	314	1	46	12.8
1928	410	371	1	38	9.3
1929	465	399	19	47	10.5
1930	620	543	7	70	11 4
1931	719	630	2	87	12 1
1932	732	674	0	58	7.9
1933	714	651	0	63	8.8
1934	633	583	0	50	7 9
1935	689	620	0	69	10 0
1936	768	716	2	50	6 5
1937	855	803	1	51	6 0
1938	861	815	0	46	5.3
1939	938	884	0	54	5.8
1940	1 028	963	9	56	5.5
1941	1 001	954	1	46	4 6
1942	1 072	1 031	0	41	3.8
1943	1 861	1 805	0	56	3 0
1944	1 405	1,350	0	55	3.9
1945	1 599	1,565	0	34	2 1
1946	1,825	1 782	0	43	2 4
1947	1 641	1 613	0	28	1 7
1948	1 742	1 725	0	17	0.9
1949	1 737	1 691	0	46	2 6
Totals	24,967	23 612	46	1,309	5.2

In 1949, 1,684 tests were given in part III, 1,674 passed and 11 (0 6 per cent) failed Results of examinations in this part in 1949 and since 1922 are given in table 42 In the 28 years shown 20,688 candidates were tested, of whom 20,167 were granted the certificate of the board The percentage of failures in this final examination in the 28 year period was 2 5 Since

TABLE 42—*National Board Examinations in Part III, 1922-1949*

Date	Total Examinations	Passed	Failed	Percentage Failed
1922	22	22	0	0 0
1923	82	81	1	1 2
1924	126	120	6	4.8
1925	219	206	13	5 9
1926	255	243	12	4 7
1927	293	272	21	7 2
1928	322	306	16	5 0
1929	352	337	15	4.3
1930	420	401	19	4.5
1931	437	419	18	4 1
1932	550	522	28	5 1
1933	551	526	25	4 5
1934	567	548	19	3.4
1935	598	578	20	3 3
1936	576	547	29	5 0
1937	668	630	38	5 7
1938	706	682	24	3 4
1939	770	729	41	5.3
1940	792	771	21	2 7
1941	910	885	25	2 7
1942	1 054	1 041	13	1.2
1943	1 230	1,213	17	1 4
1944	1 168	1 146	22	1.8
1945	1,245	1 232	13	1 0
1946	1 634	1 613	21	1 2
1947	1 741	1 723	18	1 0
1948	1 715	1 700	15	0 9
1949	1 685	1 674	11	0.6
Totals	20 688	20 167	521	2.5

1915, when the board's first examination was given, 20,435 candidates have been certified

The 1,674 physicians certified as diplomates last year represented 65 medical schools in the United States, five in Canada and seven universities in other countries The school and the number of examinees from each are included in table 43

TABLE 43—*Diplomates from Individual Medical Schools, 1949*

College of Medical Evangelists	29	Ohio State University	1
Stanford University	4	New York Medical College	112
University of California	2	New York University	109
Univ of Southern California	3	Syracuse University	23
University of Colorado	4	University of Buffalo	67
Yale University	48	University of Rochester	47
George Washington University	75	Duke University	62
Georgetown University	84	Bowman Gray School of Med	2
Howard University	5	Western Reserve University	6
Emory University	1	University of Oklahoma	2
Medical College of Georgia	2	University of Oregon	10
Loyola University	11	Hahnemann Medical College	22
Northwestern University	25	Jefferson Medical College	11
University of Chicago	10	Temple University	16
University of Illinois	16	University of Pennsylvania	32
Indiana University	3	University of Pittsburgh	3
State University of Iowa	25	Woman s Medical College	11
University of Kansas	2	Med College of South Carolina	2
University of Louisville	13	Meharry Medical College	5
Tulane University	4	University of Tennessee	2
Johns Hopkins University	14	Vanderbilt University	6
University of Maryland	9	Baylor University	3
Boston University	59	University of Texas	2
Harvard Medical School	106	University of Utah	7
Tufts College Medical School	85	University of Vermont	20
University of Michigan	42	Medical College of Virginia	2
Wayne University	9	University of Virginia	1
University of Minnesota	15	Marquette University	18
St Louis University	14	University of Wisconsin	2
Washington University	6	McGill University	18
Creighton University	8	Queen s University	3
University of Nebraska	11	University of Manitoba	1
Albany Medical College	39	University of Toronto	4
Columbia University	91	University of Western Ontario	1
Cornell University	63	Foreign Schools	11
Long Island College of Medicine	87		
Total			1 674

TABLE 44—*Parts I, II and III, Excluding Duplications, 1922-1949*

Date	Total Examinations	Passed	Incomplete	Failed	Percentage Failed
1922	525	381	58	86	18 4
1923	775	594	79	102	14 7
1924	978	756	69	153	16 8
1925	1,167	915	50	202	18 1
1926	1,161	930	105	126	11 9
1927	1,248	947	142	159	14 4
1928	1,430	1,101	211	118	9 7
1929	1,723	1,280	319	124	8 8
1930	2 044	1,547	322	175	10.2
1931	2 218	1,632	410	176	9 7
1932	2 342	1,850	355	137	6 9
1933	2 277	1,806	280	191	9 6
1934	2,261	1,801	330	130	6 7
1935	2,368	1,831	408	129	6 6
1936	2,517	1,989	353	175	8 1
1937	2,735	2,151	397	187	8 0
1938	2,992	2,308	493	191	7 6
1939	3,221	2,476	443	302	10 9
1940	3,188	2,597	363	228	8 1
1941	3,318	2,749	332	237	7 9
1942	3,607	3,014	391	202	6 3
1943	4,514	3,671	606	237	6 1
1944	5,363	4,235	759	369	8 0
1945	5,614	4,468	886	260	5.5
1946	5,912	4,730	898	284	5 7
1947	6 249	4,965	1,002	282	5 3
1948	6,389	5,194	902	293	5 3
1949	6,493	5,376	880	237	4 2
Totals	84,629	67,294	11,843	5,492	7 5

Physicians who earn the Certificate of the National Board are designated as diplomates and are privileged to use in any proper manner the designating initials, D N B The diplomates have formed a national organization entitled The Associated Diplomates of the National Board, which meets at the time and place of the annual meetings of the American Medical Association and of the Southern Medical Association

The present schedule of examination fees is as follows part I, $20, part II, $15 and part III, $40, a total of $75

The figures presented in the preceding tables represent examinations given The number of persons tested during any one year is recorded for the 28 year period in table 44 The classification "passed" or "failed" in cases in which more than one examination has been taken in a given year was based on the results of the last examination during the year in question Thus, if in 1949 a candidate passed part I but at a subsequent examination in 1949 he failed part II, he is computed in this tabulation as having failed On this basis figures computed indicate that there were 6 493 who took at least one of the tests of the National Board in 1949 as compared with 525 in 1922 The trend has been steadily upward In 1949 the number of candidates was 104 greater than in the preceding year For the 28 year period, 84,629 persons were examined in one or more of the annual examinations, of whom 67,294 passed, 11,843 took incomplete examinations and 5,492 (7 5 per cent) failed

TABLE 45—*Licenses Granted on the Basis of National Board Certificates, 1949*

Alabama	8	New Jersey	102
Arizona	14	New Mexico	5
Arkansas	3	New York	756
California	215	North Carolina	42
Colorado	17	North Dakota	4
Connecticut	128	Ohio	69
District of Columbia	102	Oklahoma	11
Georgia	10	Oregon	27
Idaho	15	Pennsylvania	107
Illinois	77	Rhode Island	22
Indiana	11	South Carolina	11
Iowa	33	South Dakota	6
Kansas	20	Tennessee	14
Kentucky	13	Texas	30
Maine	27	Utah	12
Maryland	45	Vermont	23
Massachusetts	273	Virginia	31
Michigan	34	Washington	43
Minnesota	64	West Virginia	11
Mississippi	4	Wyoming	2
Missouri	30	Alaska	3
Nebraska	5	Hawaii	12
Nevada	5	Puerto Rico	6
New Hampshire	34		
Total			2 536

The total number of diplomates granted licenses in 1949 to practice medicine on the basis of their National Board certificate in 43 states, the District of Columbia, Alaska, Hawaii and Puerto Rico was 2,536 The number so registered by each licensing board is shown in table 45, and 17,530 have been so licensed since the board was formed In the same period, however, 20,167 received the certificate of the board

The constitution of the National Board of Medical Examiners provides for a membership of 33 persons, representing the federal services, the Federation of State Medical Boards of the United States, the Association of American Medical Colleges and the Council on Medical Education and Hospitals of the American Medical Association and members elected at large The president of the board is Borden S Veeder, M D, St Louis, the medical secretary is J Stewart Rodman, M D, and the executive secretary and treasurer is Mr E S Elwood The address of the board is 225 South 15th Street, Philadelphia 2

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SATURDAY, JUNE 3, 1950

THE FORTY-EIGHTH ANNUAL REPORT ON MEDICAL LICENSURE

The forty-eighth annual report on medical licensure by the Council on Medical Education and Hospitals which appears in this issue of The Journal presents statistics concerning the medical examination and the licensure of physicians in the United States and its territories and outlying possessions for the year 1949 and summarizes trends over many years. There is also included information pertaining to the current regulations for medical licensure.

During the year 1949 there were 12,181 licenses to practice medicine issued by the medical examining boards of the 48 states, the District of Columbia, Alaska, Hawaii, Puerto Rico and the Virgin Islands. Of the 12,181 licenses issued, 5,252 were granted after written examination and 6,929 by reciprocity or endorsement of state licenses or the certificate of the National Board of Medical Examiners. There was a decrease of 1,411 in the number of physicians licensed in 1949 as compared with the previous year, although the number of licenses granted exceeded the average annual prewar registration by more than 3,000. The continuing decrease in the number of licenses issued annually since 1946, when 16,236 physicians were licensed, indicates that the entry or return to medical practice of physicians who served in the armed forces during the war is nearing completion.

The data presented indicates that last year 5,866 physicians received their first license to practice medicine and thus represent additions to the medical profession. In the same period there were 3,600 deaths of physicians reported, resulting in a net gain of 2,266. The registration of physicians revealed that 93.7 per cent were graduates of approved medical schools in the United States and Canada. Four per cent of the physicians registered were graduates of foreign medical faculties.

The percentage of failures from existing United States schools was 3.2, of graduates of unapproved medical schools in the United States 34.7 per cent failed, graduates of schools of osteopathy admitted to the medical licensure examinations in several states represented 42.1 per cent failures, and 56.7 per cent of the foreign-trained physicians examined for medical licensure last year failed. The total percentage of failures was 12.5.

The second section of the report pertains to the results of examinations given by the 20 boards of examiners in the basic sciences. Certificates in the basic sciences were issued to 5,136 candidates in 1949. Among graduates of approved medical schools in the United States, foreign-trained physicians, graduates of unapproved medical schools and medical students, 13.4 per cent failed. There were 42.9 per cent failures in these examinations by graduates of schools of osteopathy, and 57.9 per cent of the graduates of chiropractic schools failed.

The final section of the report deals with the examinations given by the National Board of Medical Examiners. The examination of the national board is given in three parts, the first part may be taken after completion of the sophomore year in medical school, the second part on completion of the medical course and the third part after a year of hospital service. There were 6,493 persons who took at least one of the tests of the national board in 1949, and 1,674 physicians were certified as diplomates. The medical licensing boards of 45 states, the District of Columbia, Alaska, Hawaii, Puerto Rico and the Canal Zone recognize the certificate of the National Board of Medical Examiners as an adequate qualification for a medical license. The total number of diplomates granted licenses in 1949 to practice medicine on the basis of this certificate was 2,536.

The presentation of this study is made available through the cooperation of the various examining and licensing boards. For their cooperation the Council and The Journal wish to express appreciation.

LICENSURE OF FOREIGN MEDICAL GRADUATES

The annual report of the Council on Medical Education and Hospitals on licensure statistics in this issue of The Journal reveals that encouraging progress is being made in developing sound policies for the licensure of foreign-trained physicians. This problem has been receiving serious study for the past three years by the Committee on Foreign Medical Credentials, an advisory committee to the Council made up of representatives of 18 interested organizations and government agencies.

On the recommendation of this Committee the Council and the Association of American Medical Colleges undertook last year to prepare a list of foreign medical schools whose graduates they could recommend for consideration by medical institutions and medical organizations in the United States on the same basis as graduates of approved medical schools in the United

States The first list of such schools was published in February of this year[1] Already 14 state licensing boards and the National Board of Medical Examiners have adopted this list Several other states have reported that adoption of the list will be formally considered at meetings of their boards in the near future In several instances the boards have indicated that graduates from other foreign schools will not be excluded from licensure but will be considered on an individual basis

In the past year six states that heretofore did not license foreign physicians have modified their regulations and now accept such candidates One state that accepted foreign graduates until this year has ruled that foreign-trained physicians are no longer eligible for licensure Altogether 36 of the 53 licensing boards in the United States, its territories and outlying possessions now admit graduates of foreign medical schools to their licensing examinations under various conditions

It is clear that in publishing their preliminary list last February the Council and the Executive Council have already made an important contribution to the solution of a difficult problem As information is compiled that will permit the listing of additional foreign schools the value of this contribution will increase

WELL WATERS AND METHEMOGLOBINEMIA IN INFANTS

The Committee on Sanitary Engineering and Environment of the Division of Medical Sciences of the National Research Council has issued a report on methemoglobinemia and nitrates[1] which reviews the relationship between infant morbidity and mortality and the quality of well water The problem has been recognized by health departments for some time, but ways of preventing it have been difficult to attain because bases for establishing permissible limits of certain chemical characteristics have been lacking The report by the committee provides a review of known data and offers several pertinent conclusions

In 1945 H H Comly[2] reported instances of "idiopathic" methemoglobinemia in infants following the ingestion of well water containing large amounts of nitrates Since then other reports have appeared, until a large number of instances have been recorded In every case the baby was fed on an artificial formula of cow's milk, condensed milk or milk powder diluted with well water Usually the wells from which the water was obtained were dug, not drilled, had inadequate or no casings and were unsatisfactorily located and constructed In many instances they showed evidence of pollution With only a few questionable exceptions the water when analyzed chemically was found to have a high content of nitrate nitrogen and sometimes traces of nitrites In some cases temporary discontinuance of the formula caused the cyanosis to disappear, only to reappear when the doubtful formula was resumed When the formula was changed to one with water of low nitrate nitrogen content, the cyanosis disappeared If the condition was permitted to continue untreated, it sometimes progressed to death A special survey by the Minnesota State Department of Health revealed 139 cases in two and one-half years, there were 14 deaths Apparently susceptibility to the development of methemoglobinemia decreases rapidly after the first two months of life and is rarely encountered after six months

Experimental studies have shown that nitrates as such are harmless to humans but become injurious when reduced to nitrites which are absorbed in the blood Cornblath and Hartman[3] have produced methemoglobinemia in infants by feeding them formulas containing well water to which nitrates have been added Apparently a number of factors, some of which are not known or well understood, influence the borderline of safety However, the danger zone probably begins when the concentration of nitrate nitrogen reaches 20 parts per million of water

Physicians are not officially required to report methemoglobinemia to health authorities, and the data collected so far stem from reports in medical and allied journals and from special inquiries These reveal, however, a health problem worthy of careful study Certain geographic locations seem to produce more cases than other areas Although one might expect some of these observations to have been gathered from persons using public water supplies secured from wells and springs, strangely no such case has been reported at this time in spite of the fact that nitrate nitrogen concentration at least on some occasions is high So far the cases reported have been associated only with the use of water from private household supplies of well water Perhaps there is a difference between nitrate nitrogen derived from organic and inorganic sources, or some other factor or factors may be responsible for the observations reported

The Committee on Sanitary Engineering and Environment has concluded that available information does not justify the stating of a safe limit for nitrate nitrogen content in public water supplies, that further studies are needed, that pending such studies water from private household well supplies having a nitrate nitrogen content in excess of 10 parts per million should be considered unsafe for infant feeding and that plants producing ammonium nitrates for fertilizer use should control their industrial waste water These conclusions of the committee are of timely importance

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[1] J A M A **142** 571 (Feb 25) 1950

[1] Maxey, K F Report on the Relation of Nitrate Nitrogen Concentration in Well Waters to the Occurrence of Methemoglobinemia in Infants, Bulletin Committee on Sanitary Engineering and Environment, National Research Council, 1950, Appendix D

[2] Comly, H H Cyanosis in Infants Caused by Nitrates in Well Water, J A M A **129**: 112 (Sept 8) 1945

[3] *Cornblath M, and Hartman, A F* Methemoglobinemia in Young Infants J Pediat **33** 421 (Oct) 1948

Current Comment

SECOND SURVEY OF COLLEGE HEALTH SERVICES

The Bureau of Medical Economic Research is conducting a survey of the university and college health services for the academic year 1949-1950 to bring up to date the 1936 study, "University and College Student Health Services," by the Bureau of Medical Economics The purpose of the present survey is to determine what health services are being rendered by the college directly or by community physicians and hospitals through the college health service offices, and how these services are being financed A twelve page schedule is being sent to 1,150 colleges and universities to obtain data for faculty members, nonacademic employees and students Insurance contracts with Blue Cross and Blue Shield plans and insurance companies, which have been made by some universities and colleges in addition to, or instead of, other methods of financing health services, are being surveyed The schedule also includes a number of questions on costs, facilities and personnel of the college health service The full cooperation of physicians in college communities and those who serve as directors of college health services will be needed in this important study The health services available to the faculty and nonacademic employees as well as to almost three million college students are of great interest and importance to American medicine

ONCOLYTIC VIRUSES

Demonstration of the tumor-necrotizing effect of Russian Far East encephalitis virus when tested against mouse sarcoma [1] led Sharpless [2] and his associates of the Lederle Laboratory, Pearl River, N Y, to test the action of numerous other viruses against transplantable malignant lymphoid tumors of chickens [3] To prepare the chicks, fragments of this tumor were homogenized with a saline solution and 0 25 cc of a 1 1,000 suspension of the resulting emulsion injected into the left pectoral muscle At the time of inoculation the majority of the chicks were 14 days old In these young chicks the tumor grows rapidly About 95 per cent of them die within eight days after the tumor becomes palpable The following viruses were tested against this tumor mumps, swine influenza, canine distemper, Bwamba, Samliki Forest, Ilhaus encephalitis, eastern and western equine encephalomyelitis, rabies, Russian spring-summer West Nile, Japanese B and St Louis encephalitis and louping-ill Two to four days after the tumor inoculation, 0 4 to 0 5 cc of a 1 100 dilution of one of the viruses was injected either into the same or the opposite breast Most of these viruses were without tumor-necrotizing action Five of the neurotropic viruses, however, had oncolytic properties These were Russian spring-summer, West Nile, Japanese B and St Louis encephalitis and louping-ill In many of the chicks treated two days after tumor inoculation palpable tumors did not develop In most of the others the tumors remained small and regressed completely in five to ten days The survival rate was about 88 per cent in a typical group of 112 treated chicks, with a mortality of 94 per cent in 95 untreated controls Equally striking results were obtained when the virus was injected into the same or the opposite breast Chicks in which the tumors had regressed usually remained healthy Thirty days later they were found to be immune to a second tumor inoculation Among 185 challenged survivors 95 per cent were fully resistant The five oncolytic viruses are relatively nonpathogenic for chicks but are highly pathogenic and impractical for use in public health or veterinary medicine Search for safer viruses is now in progress

HISTOLYTIC ANTIBIOTICS

The two new antibiotics chloramphenicol (chloromycetin®) and aureomycin are of basic theoretical interest because of their action against rickettsiae and many viruses Activity against these obligate intracellular parasites led Lepine [1] and his associates of the Pasteur Institute, Paris, France, to test the effects of these antibiotics on the rate of proliferation of normal tissue cells Explants from 11 to 15 day old chick embryos were cultivated on a plastic membrane in a liquid medium according to the Wirth [2] technic Under these conditions the cells multiply to form a flat single layer consisting almost entirely of fibroblasts or epithelial cells The liquid medium was changed on the third day and the amount of cell growth measured on the fifth day The average of 10 to 15 duplicate measurements was taken as the coefficient of cell growth Ten to 1,000 gammas per cubic centimeter of one antibiotic were added to the liquid medium and the resulting changes in the growth rate noted In a typical case the coefficient of 63 was reduced to 48 by the addition of 10 gammas per cubic centimeter of aureomycin, and it was further reduced to 2 and 0 by the addition of 100 and 1,000 gammas of aureomycin per cubic centimeter, respectively Histologic examinations showed numerous vacuoles and fatty degenerations Cell death was noted in tissues subjected to the 1,000 gamma concentration Similar histolytic effects were noted with chloramphenicol The concentrations required to inhibit growth of embryonic tissue cells are within the range attained in the blood of treated patients, although it has been shown that patients with blood levels of chloramphenicol within these ranges for short intervals do not manifest toxic effects [3] Assuming that adult and embryonic tissues are equally susceptible, the phenomenon described by the Paris investigators would be of practical clinical interest It would be particularly applicable to patients who require repair of tissues or who are maintained on prolonged therapeutic regimens

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[1] Moore A E Cancer **2**: 516 525 1949

[2] Sharpless, G R. Davis M C and Cox H R Proc. Soc Exper Biol & Med **73** 270 (Feb) 1950

[3] Olson C Cancer Research **1** 384 1941

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[1] Lépine P Barski G and Maurin J Proc Soc. Exper Biol & Med **73**: 252 (Feb) 1950

[2] Wirth J and Barski G Ann Inst. Pasteur **73** 987 1947 Barski G and Maurin J Ann Inst. Pasteur **74** 312 1948 **76**: 295 1949

[3] Smadel J E. Woodward T E Ley H L Jr and Lewthwaite R J Clin Investigation **28** 1196 1949

WASHINGTON NEWS

Blood Program

The National Security Resources Board will hold the first meeting of all organizations concerned with the national emergency blood program early in June The A M A delegate is Dr Leonard W Larson of Bismark, N D, his alternate is Dr Herbert P Ramsey of Washington, D C Both are members of A M A's House of Delegates The meeting will be an initial step in integrating the blood programs of anticipated military and civilian needs in time of national emergency

Meanwhile, the Defense Department has gone ahead, with NSRB approval, and adopted a program for determining blood supplies for military use NSRB is thoroughly satisfied that the Defense Department program will fit in with the over-all blood needs and agrees that this part of the plan should be underway before the first meeting of all groups concerned Dr Richard Meiling, director of Defense Medical Services, will be in charge of the military side and work closely with civilian groups and government agencies in procuring and storing whole blood, plasma and plasma substitutes

First steps in Defense Department's program will be to determine how much whole blood and plasma substitutes will be needed for combat and reserve and how much and what kind of transfusion equipment will be necessary Defense has a $100,000 appropriation for fiscal 1951 for research on blood preservation and transfusion equipment

Tuberculosis in Laboratory Workers

Dangers to laboratory workers from infection by tuberculosis germs are emphasized by both Public Health Service and the Army Dr A G Wedum, safety director for the Army's bacteriologic warfare center at Camp Detrick, Maryland, says new mixtures of the germs are infecting workers "right and left," because of their greater potency Dr Wedum discussed the situation in connection with a meeting of the Society of American Bacteriologists He also displayed there, for the first time, an Army-produced film dealing with these dangers and effective safeguards In a few months the society and the Armed Forces Institute of Pathology, Washington, D C, will have prints of the film for use of medical societies and schools Another film on the same subject is available now at the Public Health Service Communicable Disease Center, Atlanta, Ga Public Health Reports (vol 65, no 14) takes up the problem of infection of laboratory workers with tuberculosis It describes the problem as "grave" and says, "The hazards of accidental infection among laboratory workers are becoming a matter of constantly greater concern to laboratory directors" The article describes safety measures adopted at the Atlanta center

Antihistamines

The Armed Forces Epidemiology Board has entered the public argument over effectiveness of antihistamines In an official report, the board said it had decided, after "significant and intensive tests," that the drugs are without effect against true cases of common cold The board says that in the tests potent prescription dosages as well as the over-the-counter drug store products were administered However, the report did not cover allergic subjects suffering from what they thought to be colds Persons with known allergies were eliminated from the group A spokesman for the board said there was absolutely no important difference in reaction between the groups of subjects given antihistamines and a control group given pills of no potency All had been infected with the common cold virus The full report is being published in the *New England Journal of Medicine*

In its fifth action against producers and sellers of antihistamines, the Federal Trade Commission has cited Grove Laboratories, Inc, of St Louis FTC charges the company with misrepresenting the therapeutic properties and effectiveness of Antimine in treatment of the common cold and disputes the safety of the product In its complaint FTC notes that advertisements for this drug represent it as a cure, preventive and competent and effective treatment for the common cold FTC says it has none of these properties

Surplus Government Real Estate

Hospitals or medical colleges anxious to obtain cost free any particular piece of surplus government real estate may have their opportunity now Regulations have been issued for disposal of certain unspecified real estate for educational and public health purposes Recipient institutions must be prepared to assume immediate custody and maintenance and to agree to use the property only in accordance with a preapproved plan Other requirements are that they must pay certain costs in connection with transfer of title and agree to make reports if called for by Federal Security Agency Under the regulations, Public Health Service and the Office of Education (both in FSA) are required to give wide publicity to property coming under this classification and to handle negotiations for disposal However, title rests with General Services Administration up to the time of transfer

Pending Legislation

The outlook for several bills, theoretically approaching the enactment stage, still remains uncertain Bills for federal assistance to local public health units, for assistance to medical education and for establishing a national school health program require only House passage, but all are controversial and the House is still bogged down by various other bills, including military The Senate calendar is more crowded than that of the House Senate leadership is committed to take up the Fair Employment Practices legislation passed early in the session by the House Two other subjects are certain to stir up long and involved argument in the upper chamber appropriations and the President's various reorganization plans

Two groups of reorganization plans await action, with a deadline of next week for the first and early in July for the second If neither house objects within the time limits, the reorganizations automatically go into effect

One proposal in the second group, incidentally, would grant important new authority to W Stuart Symington, chairman of the National Security Resources Board The President proposes to give him powers which would give him rank second only to Defense Secretary Louis Johnson He would be supreme adviser to the President in all phases of emergency mobilization planning, including direction of medical services

Also, now that the House has finished with the omnibus appropriations bill, the Senate must go to work on this complicated piece of legislation While the Senate probably will not get down to details on appropriations the way the House has, it will have to devote something like a month to this big money bill

However, even the Senate's jammed-up calendar will not prevent a heated floor discussion of one bill of major importance to the medical profession H R 6000, for extension of social security benefits and coverage The Senate Finance Committee several weeks ago dropped out of H R 6000 the section on permanent and total disability, which has been objected to by A M A witnesses But this action was not sufficiently convincing to the administration leadership The Democratic leader, Senator Scott Lucas of Illinois, and floor leader, Francis Myers of Pennsylvania, announced they would fight to have this section reinstated Both are members of the Finance Committee (where they voted to approve the bill), but they disagree with the committee's decision that existing federal legislation gives sufficient protection to the handicapped

ORGANIZATION SECTION

Official Notes

TOUR TO THE SAN FRANCISCO CONVENTION

International Travel Service, Palmer House, Chicago, is operating a de luxe first class convention tour to the A M A Convention in San Francisco This tour will leave Chicago Saturday, June 17, at 1 p m (C S T) via the Milwaukee Road Highlights of this tour are two nights at Banff Springs Hotel, motor tour to Lake Louise and Field one night at Chateau Lake Louise, Vancouver, by steamer to Victoria and Seattle, overnight at the New Washington Hotel, motor to Portland, Columbia River Highway, San Francisco—the Convention City—Los Angeles, three nights at Los Angeles Ambassador Hotel, Dinner Dance in Coconut Grove, return via Grand Canyon arrive Chicago July 7 Rates start at $397 plus tax, one to a lower berth. Reservations and descriptive literature may be secured from International Travel Service, Palmer House, Chicago telephone Financial 6-3750 Special arrangements may be made for those who wish to return directly from San Francisco

NEW A M A PUBLICATIONS

After three years of work, the eighteenth edition of the American Medical Association directory of physicians has been completed and copies are now being shipped to subscribers The new directory contains 2 913 pages and lists information on 219 677 physicians in the United States, its dependencies and Canada It also lists American graduates and licentiates located temporarily abroad Since the 1942 directory, thousands of changes of address have been made 51,984 names have been added and 28,242 names dropped from the book on account of death or for other reasons The directory costs $25 Orders can be placed by writing to Frank V Cargill, Directory Department American Medical Association, 535 North Dearborn Street, Chicago (10)

Volume III of "Questions and Answers" is now available from the Order Department of the American Medical Association This book sells for $3 This book contains answers to nearly 1,000 difficult questions asked by practicing physicians in the United States Material was selected from the "Queries and Minor Notes' section appearing in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION during the last seven years

State Legislation

Louisiana

Bills Introduced—H 115 proposes the creation of a Louisiana **Board of Chiropractic Examiners** and defines a chiropractor as one who shall employ objective or subjective means to ascertain the alinement of the vertebrae of the human spine including the use of analytic instruments and x ray for the purpose of analysis and the practice of adjusting the vertebrae for the purpose of correcting interference with nerve transmission and expression H 123 proposes certain amendments to the law relating to the practice of **osteopathy** especially with reference to the qualifications of applicants and licenses by reciprocity S 26 proposes the creation in the Division of Administration of the office of **Commissioner of Hospitals** to coordinate the activities of the state owned general charity hospitals hospitals for the mentally ill and tuberculosis hospitals to conduct investigations relative to such hospitals and to perform such other duties that might be assigned to him The Commissioner of Hospitals would be required to be a medical doctor duly authorized and licensed to practice in the state and to have had administrative experience in the operation of hospitals or in the field of public health S 56 proposes that the superintendents of all charity hospitals and other hospitals having contracts with the state of Louisiana for the **care and treatment of indigents** be authorized and directed to furnish to the doctor who refers the patient to such institution a report on such patient showing the diagnosis laboratory and x ray findings and treatment prescribed, when such patient is discharged from such institution

Massachusetts

Bill Enacted—H 2213 has become chapter 431 of the Laws of 1950 It provides that no **blood banks** shall be established and maintained in Massachusetts except by a hospital licensed by the department under the provisions of section 71 or by the American Red Cross

New Jersey

Bill Enacted—A 311 A has become chapter 110 of the Laws of 1950 It fixes minimum qualifications for the licensing of **public health laboratory technicians**

Rhode Island

Bill Enacted—H 700 was approved May 1 1950 It provides regulations requiring corporations to engage registered or practical **nurses or first aid workers** for service in their plants depending on the number of employees in the corporation The law also defines Standing Orders as meaning a written or printed compend of directions outlining routine medical or nursing services and procedures approved and signed by a licensed physician and acknowledged by him to be services and procedures which may in his absence be performed by a particular registered nurse or a particular practical nurse

Coming Medical Meetings

American Medical Association San Francisco June 26-30 Dr George F Lull 535 North Dearborn St. Chicago 10 Secretary

American Association for the Surgery of Trauma Salt Lake City June 22 24 Dr Charles G Johnston 1512 St. Antoine St Detroit 26 Secretary

American College of Chest Physicians San Francisco June 22 25 Mr Murray Kornfeld 500 N Dearborn St Chicago 10 Executive Secretary

American College of Radiology San Francisco June 25 Mr William C Stronach 20 N Wacker Drive Chicago 6 Executive Secretary

American Dermatological Association Jasper National Park Alberta Canada June 18-22 Dr Louis A. Brunsting 102 Second Ave. S W Rochester Minn Secretary

American Diabetes Association San Francisco Hotel Whitcomb June 24 25 Dr John A Reed 1 Nevins St Brooklyn 17 Secretary

American Hearing Society Chicago Drake Hotel June 15 17 Mrs. Frances E. Lee 817 Fourteenth St. N W Washington 5 D C. Secretary

American Heart Association San Francisco, Fairmont Hotel June 22 25 Dr John J Sampson 1775 Broadway New York 19 Secretary

American Medical Women s Association Carmel Calif June 20-22 Dr Grace Talbott 909 Hyde St San Francisco 9 Secretary

American Neurological Association Atlantic City Claridge Hotel June 12 14 Dr H Houston Merritt 710 W 168th St New York 32 Secretary

American Proctologic Society Los Angeles July 1 5 Dr W Wendell Green 1838 Parkwood Ave Toledo 2 Ohio Secretary

American Society for the Study of Sterility San Francisco Sir Francis Drake Hotel June 24 25 Dr John O Haman 490 Post St. San Francisco 2 Secretary

Association for the Study of Internal Secretions San Francisco June 23 24 Dr Henry H Turner 1200 N Walker St. Oklahoma City 3 Secretary

Conference of Presidents and Other Officers of State Medical Associations San Francisco Palace Hotel June 25 Mr John E Farrell 106 Francis St. Providence R I Secretary

Maine Medical Association Poland Spring June 18 20 Dr Frederick R. Carter 142 High St. Portland 3 Secretary

Medical Library Association Boston June 19 22 Miss Helen Hlavac, 209 East 23d St. New York 10 Secretary

Minnesota State Medical Association Duluth June 12 14 Dr B B Souster 496 Lowry Medical Arts Bldg St Paul 2 Secretary

Montana State Medical Association Bozeman Gallatin County High School July 9 12 Dr Herbert T Caraway 115 N 28th St Billings Secretary

Oklahoma State Medical Association Oklahoma City June 4-7 Dr Lewis J Moorman 210 Plaza Court, Oklahoma City Secretary

Western Association of Industrial Physicians and Surgeons San Francisco June 25 Dr Christopher Leggo C & H Sugar Refining Corp Crockett Calif Secretary

West Virginia State Medical Association, White Sulphur Springs The Greenbrier July 27 29 Mr Charles Lively P O Box 1031 Charleston 24 Executive Secretary

International Meetings

International Anatomical Congress Oxford England July 25 28 Secretary Miss A M Maynall Department of Human Anatomy University Museum Oxford England

International Association for the Prevention of Blindness London England July 17 21 Prof P Bailliart 47 rue de Bellechasse Paris France Chairman

International Cancer Research Congress Paris France July 17 22 Secretariat 6 Ave Marceau Paris 8 France

International Congress of Ophthalmology, London, England, July 17 21 Mr Keith Lyle 45 Lincoln s Inn Fields London W C 2 England Secretary

International Pediatric Congress Zurich Switzerland July 24-28 Dr L. Emmet Holt Jr 477 First Ave New York City 16 Secretary General.

International Union Against Venereal Diseases Zurich Switzerland July 29 Aug 2 Dr A Cavaillon Institut A Fournier 25 Blvd St. Jacques Paris 14em France Secretary

PROGRAM OF THE AMERICAN MEDICAL ASSOCIATION FOR THE ADVANCEMENT OF MEDICINE AND PUBLIC HEALTH

A Federal Department of Health

1 Creation of a Federal Department of Health of Cabinet status with a Secretary who is a Doctor of Medicine, and the coordination and integration of all Federal health activities under this Department, except for the military activities of the medical services of the armed forces

Medical Research

2 Promotion of medical research through a National Science Foundation with grants to private institutions which have facilities and personnel sufficient to carry on qualified research

Voluntary Insurance

3 Further development and wider coverage by voluntary hospital and medical care plans to meet the costs of illness, with extension as rapidly as possible into rural areas Aid through the states to the indigent and medically indigent by the utilization of voluntary hospital and medical care plans with local administration and local determination of needs

Medical Care Authority with Consumer Representation

4 Establishment in each state of a medical care authority to receive and administer funds with proper representation of medical and consumer interest

New Facilities

5 Encouragement of prompt development of diagnostic facilities, health centers and hospital services, locally originated, for rural and other areas in which the need can be shown and with local administration and control as provided by the National Hospital Survey and Construction Act or by suitable private agencies

Public Health

6 Establishment of local public health units and services and incorporation in health centers and local public health units of such services as communicable disease control, vital statistics, environmental sanitation, control of venereal diseases, maternal and child hygiene and public health laboratory services Remuneration of health officials commensurate with their responsibility

Mental Hygiene

7 The development of a program of mental hygiene with aid to mental hygiene clinics in suitable areas

Health Education

8 Health education programs administered through suitable state and local health and medical agencies to inform the people of the available facilities and of their own responsibilities in health care

Chronic Diseases and the Aged

9 Provision of facilities for care and rehabilitation of the aged and those with chronic disease and various other groups not covered by existing proposals

Veterans' Medical Care

10 Maintenance of existing high standards of medical care for veterans, including extension of facilities where the need can be shown and, where practicable, care of the veteran in his own community by a physician of his own choice

Industrial Medicine

11 Greater emphasis on the program of industrial medicine, with increased safeguards against industrial hazards and prevention of accidents occurring on the highway, at home and on the farm

Medical Education and Personnel

12 Adequate support with funds free from political control, domination and regulation of the medical, dental and nursing schools and other institutions necessary for the training of specialized personnel required in the provision and distribution of medical care

GOVERNMENT SERVICES

ARMY

ANNUAL MEETING OF PSYCHOLOGY CONSULTANTS

The annual conference of consultants in clinical psychology to the Army Surgeon General was held in the Surgeon General's Office, Washington D C, May 8 Progress of the Army Medical Department's Clinical Psychology Program was reviewed and plans for the forthcoming year formulated The consultants present were Wayne Dennis, Ph D, University of Pittsburgh, William A Hunt, Ph D, Northwestern University, Carlyle F Jacobsen, Ph D, University of Iowa, James G Miller, M D, Ph D, Chicago University, and David Shakow, Ph D, University of Illinois Representing the Surgeon General were Col John M Caldwell (MC), chief of the Psychiatry and Neurology Consultants Division, Col Othmar F Gorup (MSC), chief, Medical Service Corps, Lieut Col Charles S Gersoni (MSC) and Major Jerome G Sacks (MSC), chief and assistant chief, respectively Clinical Psychology Branch, Psychiatry and Neurology Consultants Division

CONSULTANTS TO VISIT EUROPEAN COMMAND

Drs Ovid O Meyer of the University of Wisconsin and S Alan Challman of the University of Minnesota went to Europe May 10 as Army Medical Department consultants They will spend about 30 days advising with Army surgeons Dr Meyer received his medical degree from Columbia University in 1926 and was certified in internal medicine in 1937 He is professor and chairman of the Department of Medicine of the University of Wisconsin Dr Challman received his medical degree from the University of Minnesota in 1930 and was certified by the American Board of Psychiatry and Neurology in 1939 He is associate clinical professor, Department of Psychiatry, University of Minnesota.

COURSE ON NUCLEAR ENERGY

A total of 293 students attended the course in the medical aspects of nuclear energy held at the Army Medical Center, Washington, D C, May 8-13 The total included regular Army and Officers Reserve Corps 69, National Guard 43, reservists on active duty 103, Public Health Service 19, Air Force 35, Canadian officers 14, and civilians, including one foreign national, 10

MONTHLY MEDICAL MEETING

Dr Melvin A Casberg, dean, St Louis University School of Medicine, was guest speaker at the Surgeon General's monthly medical meeting, May 18, at the Army Medical Center, Washington, D C Dr Casberg's subject was "Current Trends in Medical Education"

PERSONAL

Col William S Stone (MC) has been appointed commandant of the Army Medical Department Research and Graduate School, Washington, D C Colonel Stone's previous assignment was chairman of the Medical Research and Development Board in the Surgeon General's Office.

VETERANS ADMINISTRATION

TUBERCULOSIS AMONG VETERANS

Dr Paul B Magnuson, chief medical director of the Veterans Administration, recently stated that 33,830 service connected and 11,233 non-service-connected cases of tuberculosis were on the VA compensation and pension rolls on Oct. 1, 1949 Each month there are 300 to 400 service-connected and 600 to 700 non service-connected cases added to the list. As of Feb 28, 1950 there were 13 065 tuberculous veterans hospitalized in VA beds 2 109 hospitalized in non VA beds and 2,379 on the waiting list a total of 17 553 There are 3,408 patients in excess of the load estimated for 1950 by the Federal Board of Hospitalization in September 1945 Dr Magnuson said that from present indications the peak tuberculosis hospital load would be about 20 000 in 1955, after that it probably would decline gradually until 1960 and then level off with a fairly steady load of 15,000 to 18,000 cases constantly hospitalized He emphasized that these figures are estimates only and may require further revision

DR. BARNWELL AWARDED THE TRUDEAU MEDAL

The National Tuberculosis Association has awarded the 1950 Trudeau medal to Dr John B Barnwell chief of the Tuberculosis Division of the Veterans Administration Department of Medicine and Surgery Under his direction, research on the treatment of tuberculosis has been carried on in 45 VA hospitals Formerly he was associate professor and physician in charge of the Tuberculosis Unit at the University of Michigan School of Medicine, Ann Arbor He is a past vice president and president of the American Trudeau Society

PUBLIC HEALTH SERVICE

SCIENCE ATTACHÉ—A NEW POSITION

Dr Arthur S Osborne has been assigned as science attaché to the science staff of the American Embassy in London Dr Osborne is the first to hold the post of science attache in an American embassy The science staff was established in the London Office of the American Embassy in 1948 under the Fulbright Act The program of the science staff includes the following activities obtaining new scientific data, through exchange of views with British scientists for dissemination among scientific and research organizations in the United States preparation of reports and evaluation of current activities in particular branches of British science for use by the State Department and other agencies of the U S government, furnishing advice on scientific matters to the embassy, and promoting "scientific good will" through discussions, seminars lectures, laboratory demonstrations and interchange of scientific programs among American and British governmental and private science groups

Dr Osborne received a bachelor of science degree from Pennsylvania State University in 1929 and his M B and Ch.B from the University of Glasgow, Scotland, in 1935 He served an internship at Samaritan Hospital, Brooklyn, and was commissioned a medical officer with the Royal Air Force in 1940 In 1942 he was commissioned in the Medical Corps of the American Air Force In 1946 he entered the Public Health Service as a commissioned officer He is a member of the Kings County Medical Society and the Royal Society of Medicine

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest such as relate to society activities, new hospitals education and public health Programs should be received at least two weeks before the date of meeting)

ALABAMA

State Medical Election—The Medical Association of the State of Alabama at its annual meeting elected Dr Joseph M Weldon, Mobile, as president and Dr James O Finney of Gadsden and Dr Alfred J Treherne, Atmore, vice presidents of divisions Dr Douglas L Cannon, Montgomery, was reelected secretary-treasurer

CALIFORNIA

Dr Carson to Head Pediatrics Department—Dr Merl J Carson, assistant professor of pediatrics and assistant dean of Washington University School of Medicine, St Louis, has been appointed head of the department of pediatrics at the University of Southern California School of Medicine, Los Angeles He will also direct the Los Angeles Children's Hospital, which is connected with the medical school Dr Carson is a graduate of Vanderbilt University School of Medicine, Nashville, 1938

State Medical Election—At the recent annual meeting of the California Medical Association, Dr Donald Cass, Los Angeles, was installed as president Dr H Gordon MacLean, Oakland, was chosen president-elect and Dr Lewis A Alesen, Los Angeles, was reelected speaker of the House of Delegates Elected to the House of Delegates of the American Medical Association are Drs H Gordon MacLean, E Vincent Askey, Los Angeles, and Dr Dwight L Wilbur of San Francisco, Dr Donald Cass, Los Angeles, Dr Ralph B Eusden of Long Beach and Dr R Stanley Kneeshaw of San Jose

CONNECTICUT

Yale Coordinates Microbiology Activities—A new department of microbiology will be established July 1 at Yale University, New Haven, to coordinate the extensive research and teaching activities related to microbiology in progress in the various schools and departments at Yale Henry P Treffers, Ph D , professor of microbiology and director of graduate studies of an interdepartmental program in microbiology in the school of medicine and graduate school, has been named chairman With its new status, the department of microbiology can now operate in any school in the university and will include studies in bacteriology, immunology, virology, mycology, parasitology and tropical medicine The present department of bacteriology will be reorganized as a section under microbiology

IDAHO

Hospital News—The new Caldwell Memorial Hospital in Caldwell was dedicated on April 16 Governor C A Robins was one of the principal speakers The hospital cost $800,000 and contains 75 beds

Public Health Meeting—The eleventh annual meeting of the Idaho Public Health Association will be held at McCall June 5-6 The sessions will be conducted along workshop lines Among the consultants assigned to each discussion group are Dr Raymond L White, Boise, chairman, Legislative Committee, Idaho State Medical Association, Dr Robert S McKean, chairman, Idaho Whitehouse Conference, Attorney General Robert E Smylie and Dr Edwin P Peterson, Boise, Dr Donald J Soltman, Grangeville, and Roy Stephenson, superintendent, Idaho Falls, Latter-Day Saints' Hospital

ILLINOIS

Society News—The Society for Experimental Biology and Medicine, Illinois Section, held its last seasonal meeting at Michael Reese Hospital, Sarah Morris Amphitheater, May 23 The guest speaker was Dr Maurice Stamler of the hospital, whose subject was "Pathogenesis of Arteriosclerosis" Nine papers were read

Personal—Ann Fox, secretary of the Educational Committee of the Illinois State Medical Society, on May 19 received the Mate E Palmer Award of Merit of the Illinois Woman's Press Association for winning first place in the publicity section in the annual contest of the association The award was given for the Health Talk titled "Try Laughing," one in a weekly service to the press of Illinois Formerly, Miss Fox was for several years, news editor of THE JOURNAL

Chicago

Society Election—At the annual meeting of the Chicago Urological Society April 27 the following officers were elected Drs Herman M Soloway, president, Frederick A Lloyd, vice president, and Jacob S Grove, secretary-treasurer

Lecture on Nutrition—At a luncheon meeting at the Milk Foundation June 22 at 11 45 a m, Dr George E Wakerlin retiring president of the foundation and head of the department of physiology, University of Illinois, will speak on the subject "Nutrition Problems in the United States Today"

Koessler Fellowship of the Institute of Medicine—The Jessie Horton Koessler Fellowship of the Institute of Medicine of Chicago for the aid of research in biochemistry, physiology bacteriology or pathology will be available on September 1 The stipend is $500 a year with the possibility of renewal for one or two years Only those applications will be considered which are approved by the head of a department in the fields mentioned or by the director of a research institute or laboratory in Chicago and which stipulate that the recipient of the fellowship shall be given adequate facilities for carrying out the proposed research, concerning which full information is required in the application Applications will be received up to July 1 and should be sent in quadruplicate to Dr Paul R Cannon, chairman, Committee on the Jessie Horton Koessler Fund, 950 East Fifty-Ninth Street, Chicago 37 Application should be made by letter

KENTUCKY

Society News—The annual dinner meeting of the Fayette County Medical Society on May 9 at the Boiling Springs Country Club, Lexington, was attended by more than 250 physicians including visitors from central Kentucky Dr Frederick T Billings Jr , Vanderbilt University School of Medicine, Nashville, spoke on "ACTH and Cortisone"

State Journal Improvements—In the May issue of the former *Kentucky Medical Journal* scientific articles are in a prominent position in the front section Twenty-two members of the state association have been appointed as consultants to review all scientific material submitted for publication Under 'Editorial Comments" short statements on pertinent subjects and on editorials from other state medical journals will be listed In the "Organization Section" activities of the state association and county societies as well as some of the proceedings of the American Medical Association will be reported The "President's Page" will continue to be a monthly feature A new cover page in color carrying the table of contents has been instituted, and the name has been changed to the *Journal of the Kentucky State Medical Association*

LOUISIANA

Personal—Dr John L Kron, New Orleans, is the recent recipient of the Thomas Jefferson School Award for school service during the past four years He was cited for having treated hundreds of Jefferson pupils free of charge

State Medical Election—The Louisiana State Medical Society at its spring meeting installed Dr George W Wright of Monroe as president and elected Drs Ulysses S Hargrove, Baton Rouge, J Kelly Stone, New Orleans, and H Guy Riche Sr , Baton Rouge, first, second and third vice presidents, respectively Dr Paul T Talbot, New Orleans, continues as secretary-treasurer

MARYLAND

Dr Perkins Heads Mental Hygiene Department—Dr Clifton T Perkins, who for the past 12 years has been head of the Massachusetts Department of Mental Health, took over his duties June 1 as head of the Maryland Department of Mental Hygiene, succeeding Dr George H Preston, Baltimore, who retired in June 1949 He is a graduate of the Boston University School of Medicine (1926) The Maryland Department of Mental Hygiene has undergone reorganization and its budget for the operation of hospitals was substantially increased by the 1949 General Assembly

New Environmental Medicine Department—Dr Joseph L Lilienthal Jr has been appointed professor of environmental medicine, a new department created at the Johns Hopkins University School of Hygiene and Public Health, Baltimore Dr Lilienthal, in addition to his new duties, will continue to be head of the physiologic division of the department of medicine at the Johns Hopkins Hospital and associate professor of medicine at the school of medicine The new department will be concerned only with fundamental research Anna Baetjer, D Sc , assistant professor of environmental hygiene, will be the only other member of the new department for the present and will continue studies she has conducted for several years on the effects of certain types of dust in the development of pneumonia and cancer It is expected that new laboratories will be provided under the future building program Dr Lilienthal, a native of New York received his medical degree from Johns Hopkins school of medicine in 1937 After serving his internship at Presbyterian Hospital in New York from 1938 to 1940, he served as assistant resident and resident physician at Johns Hopkins Hospital from 1940 to 1942 He returned to the university staff in 1946 after four years' service in the navy

MINNESOTA

Dr Wakim Visiting Professor at University of Syria—Dr Khalil G Wakim professor of physiology at the Mayo Foundation and Medical Research Consultant at the Mayo Clinic, Rochester, left in March for Syria to serve as a visiting professor at the National University of Syria at Damascus and to assist in the reorganization of the medical school of the university under a three month grant awarded by the Department of State in cooperation with the Mayo Foundation and Clinic This is the first grant awarded to a visiting professor under the exchange of persons program authorized for an assignment in the Eastern Hemisphere by the Smith Mundt Act Ultimate development of a school of public health for local training of Syrian Health Department workers is expected as an outgrowth of the project Dr Wakim was born in Sidon Lebanon and received his medical degree from the American University of Beirut School of Medicine where he was an instructor in physiology for several years In 1938 he came to the United States While at the American University of Beirut, Dr Wakim made a study for the British Government one summer on health conditions in rural Palestine and served for three summers as director of village welfare work In 1936 he made a study of health conditions and practiced medicine among the nomadic tribes of the Arabian desert in the Kuneitra Area In the United States he has served as visiting professor of physiology at the State University of Iowa College of Medicine, Iowa City From 1941 to 1943 he was on the faculty of the Indiana University School of Medicine, Indianapolis He is a consultant to the Surgeon General at the Army Medical Center on basic medical education

NEW YORK

Postgraduate Instruction—A postgraduate lecture has been arranged for the Warren County Medical Society to be given June 8 at 9 p m at the Queensbury Hotel, Glens Falls, by Dr H Pelham Glasier, Albany, on Carcinoma of the Colon" The Geneva Academy of Medicine, meeting at the Belhurst in Geneva June 19 at 8 30 p m, will hear Dr Timothy J Riordan New York speak on "The Treatment of Common Diseases of the Skin" This instruction is provided by the Medical Society of the State of New York with the cooperation of the New York State Department of Health

Service in Mental Hygiene Department—During the past few months the State Department of Mental Hygiene, for the first time formally recognized the quarter century or longer service of employees The combined service of the 1 178 employees who qualified for awards totals 35 000 years Employed mainly in the 27 institutions administered by the department 712 have been on duty from 25 to 30 years, 370 from 30 to 40 years and 70 for more than 40 years Employees who received the awards represent all grades in the civil service classification of personnel Included are doctors nurses and attendants kitchen and laundry workers, clerical help, skilled workmen and laborers cooks and bakers, maintenance men, institution police and firemen and others engaged in the administration and operation of the state hospitals and school of the mental hygiene system

Training Center on Atomic Energy Development—The University of Rochester on May 15 opened a new million dollar center financed by the Atomic Energy Commission, for research and training of physicians and technicians in medical problems relative to atomic energy development. Attached to the University of Rochester School of Medicine and Dentistry, the center is planned to help meet the nation s need (1) to train medical and staff personnel of the armed forces for atomic warfare defense (2) to build up a nucleus of civilian medical personnel having a knowledge of atomic energy, (3) to supply a source of trained research scientists in the branches of medicine biology, physics, biophysics, physiology, chemistry and biochemistry, in which the new technics of nuclear energy may be employed and (4) to supply the necessary scientific personnel for the various regional laboratories of the A E C. The new facilities will permit expansion of the University of Rochester s studies for the U S Government in the medical and biologic aspects of radioactive substances which have been in progress for a number of years Postgraduate training will be given in the treatment of radiation sickness, the use of radioisotopes for tracer studies and therapy and instruction in such subjects as pharmacology and toxicology of radioactive materials principles of shielding, design of radiochemical laboratories technic of personnel monitoring, hazards of reactor operation, prevention of radioactive contamination and methods of decontamination, and the disposal of radioactive waste materials Cancer research will be permitted as part of the elective research open to trainees Henry A Blair, Ph D physiologist and biophysicist, is director of the A E C project at Rochester, which began under the Manhattan District during World War II, when it was a center for research on the medical hazards of the atomic bomb development

New York City

Grant to Study Facial Deformities—A research grant of $52 379 to finance a two year study of the psychologic and sociologic aspects of facial deformities and plastic surgery by a team of scientists at the New York University-Bellevue Medical Center has been made by the National Institute of Mental Health The project is being coordinated by Frances C MacGregor research associate in sociology and is under the direction of Dr John M Converse, a faculty member of the department of surgery, New York University College of Medicine.

Dr Rennie Appointed Professor of Psychiatry—Dr Thomas A. C Rennie, attending psychiatrist of the Payne Whitney Psychiatric Clinic, New York Hospital, has been appointed professor of psychiatry (social psychiatry) at Cornell University Medical College In addition he is psychiatric consultant for the American Red Cross, consultant to the office of the Surgeon General, U S Public Health Service, director Division of Rehabilitation, National Committee for Mental Hygiene, and member, committee on neuropsychiatry, National Research Council Dr Rennie was appointed associate professor of psychiatry at Cornell in 1941, in addition to the Payne Whitney affiliation A native of Scotland, Dr Rennie did undergraduate work at the University of Pittsburgh and received his medical degree from Harvard Medical School, Boston, in 1928

NORTH CAROLINA

State Medical Election—The Medical Society of the State of North Carolina at its May meeting installed Dr Roscoe D McMillan of Red Springs as president and Dr Fred C Hubbard of North Wilkesboro as president-elect Dr Millard D Hill of Raleigh was elected secretary-treasurer in 1949 and serves through 1952

University Promotions—Dr Robert B Lawson, associate professor of pediatrics, has been promoted to professor of pediatrics and director of the department at Bowman Gray School of Medicine of Wake Forest College, Winston-Salem Dr Leroy J Butler will retain the title of professor of pediatrics but has asked to be relieved of administrative duties Dr Eben Alexander Jr has been promoted from instructor in surgery to assistant professor of surgery in charge of neurosurgery Dr George E Bradford, formerly assistant in clinical otolaryngology, has been named assistant professor of otolaryngology

OKLAHOMA

State Medical Meeting—The Oklahoma State Medical Association will hold its annual meeting June 4-7 with headquarters in the Municipal Auditorium Oklahoma City, under the presidency of Dr George H Garrison, Oklahoma City Guest speakers are

Joseph W Gale Madison Wis The Crippled Lung

Albert N Lemoine Jr Kansas City Mo Differential Diagnosis of a Red Eye

Vincent J O Conor Chicago Rupture of the Urethra and Bladder

Curtis H Tyrone New Orleans Endometriosis

Kenneth E. Appel Philadelphia Gastrointestinal Function and Emotion

Harry Shwachman Boston Use of New Antibiotics in Infancy and Childhood

John S Bouslog Some Misconceptions of the Gastrointestinal Tract in Children.

Edgar Hull New Orleans Pitfalls in the Use of Precision Methods in Cardiac Diagnosis

Robert R. Kierland Rochester Minn Treatment of the Commoner Skin Diseases

John S Knight Kansas City Mo Hoarseness Voice Recording in Various Laryngeal Diseases

Atha Thomas Denver Amputation—Surgical Principles and After Care with Special Attention to Prosthetic Requirements

A public television broadcast on poliomyelitis will take place Wednesday from 1 30 p m to 2 30 p m The president s dinner dance will be held Tuesday at 8 p m Both scientific and commercial exhibits will be shown The Woman's Auxiliary will meet at the Skirvin Hotel

PENNSYLVANIA

State Society's Five Year Postgraduate Program—The fourth Graduate Education Institute series of lectures to begin this fall will inaugurate a five year program to include 20 special courses of 15 hours each in the 10 teaching centers Two courses will be presented in the fall and two each spring This new plan, while aimed to appeal to the general practitioner, will be less varied and more concentrated than the previous courses and will allow sufficient time for detailed consideration of certain subjects Each day's session will consist of six hours of instruction divided equally between two different courses The faculty will include lecturers obtained largely from the medical schools within the state Any one holding an M D degree may register The fee will be $25 for members of the Medical Society of the State of Pennsylvania or the American Medical Association With the exception of veterans of World War II applying under the G I Bill of Rights, nonmembers are required to pay $50 A special fee of $15 will be charged for any single course The courses for the five year program will include allergy, bone and joint diseases, cardiology, dermatology, endocrinology, gastroenterology, genitourinary diseases, gynecology, hematology, infectious diseases, interpretation of symptoms on a physiologic basis, metabolic diseases, neurology, obstetrics, parasitic diseases, peripheral vascular diseases, physical medicine and rehabilitation psychiatry, pulmonary diseases and special senses, which include eye, ear, nose and throat

The ten teaching centers will be located in Allentown, Clearfield, Harrisburg, Johnstown, Lancaster, Meadville, Reading, Washington, Wilkes-Barre and Williamsport Scranton will alternate with Wilkes-Barre each year beginning in the fall of 1951 Permanent attendance records will be maintained Information may be obtained by writing to the Commission on Graduate Education at 230 State Street, Harrisburg, Pa

Philadelphia

The Packard Library—The College of Physicians of Philadelphia will receive the medical library and lantern slides belonging to Dr Francis Randolph Packard, throat specialist and medical historian Dr Packard, a past president of the college, died April 18

Psychiatric Clinic for Juvenile Patients—The School of Medicine and the Hospital of the University of Pennsylvania have established a psychiatric clinic for the treatment of juvenile patients with emotional disturbances In the Clinic for Functional Diseases the new children's section will be staffed with five psychiatrists They will strive for early detection and correction of maladjustments of childhood Dr Kenneth E Appel, director of the clinic, said that it would also serve as a training center for instruction of interns and resident physicians The work will be directed by Dr Norman K Nixon, who has been associated with the children's psychiatric clinics in New York City for the last three years

WISCONSIN

Heart Association Meeting—The annual meeting of the Wisconsin Heart Association will be held in Madison June 10 The all day program will feature scientific meetings at the State of Wisconsin General Hospital, Madison, and at the dinner program beginning at 6 30 at the Park Hotel The speaker of the evening will be Dr George E Fahr, professor of medicine, University of Minnesota Medical School, Minneapolis The afternoon program will include a clinical conference on four heart disease cases

GENERAL

Catholic Physicians Luncheon—A luncheon and meeting for Catholic physicians will be held at the Fairmont Hotel, San Francisco, June 28 at 12 30 p m, sponsored by the Federation of Catholic Physicians' Guilds, St Louis Tickets may be purchased at the registration desk

National Board Diplomates Meeting—The Associated Diplomates of the National Board of Medical Examiners, now numbering over 20,000 in the United States, Canada and elsewhere, will hold their annual meeting at 4 p m June 28 at the Fairmont Hotel, San Francisco The president is Dr Willard O Thompson and the secretary Dr Paul S Rhoads, both of Chicago

Society for the Study of Sterility—The Conference of the American Society for the Study of Sterility will be held at the Sir Francis Drake Hotel, San Francisco, June 24-25, under the presidency of Dr Lyman W Mason, Denver, Colo Subjects for the Saturday program are Mammalian Aspects of Infertility and Gynetic Aspects of Infertility, the Sunday program, Basic Studies on the Role of the Male in Sterility, and Standards and Therapy in the Male Registration is $10 and should be sent to the American Society for the Study of Sterility, 20 Magnolia Terrace, Springfield 3, Mass

Medical Women's Meeting—The American Medical Women's Association will hold its annual meeting at the Del Monte Lodge, Pebble Beach, Calif, June 20-22 The meeting will be a business and social one except for the Woolley Memorial Lecture on "Pathology of Prematurity," by Dr Edith L Potter, Chicago The incoming officers of the association include Drs Elizabeth S Waugh, Philadelphia, president Amey Chapell, Atlanta, Ga, president-elect, Mildred C J Pfeiffer, Philadelphia, corresponding secretary, Margaret H Edwards, Pottsville, Pa, recording secretary, and Mary R Noble Bowmansdale, Pa, treasurer

Hearing Society Meeting—The National Conference of the American Hearing Society will be held in Chicago at the Drake Hotel, June 15-17 On the afternoon of June 15 there will be a symposium on industrial deafness with Dr William E Grove of Milwaukee, chairman of the subcommittee on Noise in Industry of the American Academy of Ophthalmology and Otolaryngology, acting as moderator The following afternoon hearing conservation will be discussed At the Thursday evening session Dr Francis L Lederer, head of the department of otolaryngology, University of Illinois College of Medicine, will act as moderator for a round table on "Hearing Problems from the Otologists' Point of View"

Christian Medical Society Meeting—The national convention of this society will be held on the campus of the Northern Baptist Seminary, 3040 W Washington Blvd, Chicago, June 16-18 The program includes

Philip B Marquart, Wheaton, Ill Scriptural Concept of Psychotherapy
Rudolph C Logefeil Minneapolis, Organization and Stimulation of Graduate Groups
Galen G Crozier, Bowling Green, Ohio, What Training Should Be Secured by the Missionary Candidate After Medical School and Internship?

On Saturday morning "The Christian Ministry of the Doctor" will be discussed, with Dr Stanley D Anderson, Waukegan, Ill, acting as chairman Dr Howard H Hamlin, Chicago, will preside at the banquet Saturday evening at 6 30

Dr Koelle Wins Abel Prize—At the Atlantic City meeting of the American Society for Pharmacology and Experimental Therapeutics George B Koelle, Ph D, Chalfont Fellow in Ophthalmology, Wilmer Institute, Johns Hopkins Medical School, Baltimore, was awarded the 1950 John J Abel Prize in Pharmacology for his researches on the histochemical differentiation of types of cholinesterase and their localization in the tissues of the cat This prize of $1,000 and a bronze medal has been donated to the American Society for Pharmacology and Experimental Therapeutics by the Eli Lilly Co, Indianapolis, for the purpose of stimulating fundamental research in pharmacology and experimental therapeutics by young investigators

Symposium on Thin Films—This symposium, sponsored by Armour Research Foundation of Illinois Institute of Technology, will be held June 8-10 at the Sheraton Hotel, Chicago Some 200 scientists will discuss the formation, geometry, structure and applications of thin films Accent will be on applications and thin film problems Any attendant will be able to present his thin film problem June 9 or 10 to outstanding authorities in the field The instrument display, which will form part of the symposium program, will show recent developments in instrumentation for phase microscopy and vacuum evaporating A new, simplified table model electron microscope, Type EMT (RCA), employing permanent magnets will be on display This instrument is designed to put the electron microscope within the reach of most laboratories, schools and industrial plants

Fellowships for Research in Blood Diseases—The Hematology Research Foundation invites applications for the Ruth Reader Fellowship, the Robert L Goldblatt Fellowship and the Dr Raphael Isaacs Fellowship for research in blood diseases in the academic year 1950-1951 The stipend for each fellowship is $1,500 per year with the option to renew This offer is made to workers of any race, creed or color in the United States Applications must be submitted no later than July 15 to the Hematology Research Foundation, 72 East 11th Street, Chicago 5 Application forms are available on request. Awards will be announced by the Medical Advisory Council either the latter part of July or early in August The council will choose the applicants on the basis of merit, and they will also choose the institution in Chicago in which the work is to be done

Society Elections —At the annual meeting of the American Psychiatric Association held May 2-3 in Detroit the following officers were elected Drs John C Whitehorn, Baltimore, president, Leo H Bartemeier, Detroit, president-elect, and R Finley Gayle Jr, Richmond, Va., secretary——At the annual meeting of the New England Society of Physical Medicine held May 17 in Boston the following officers were elected Dr Sidney Licht, Boston, president, Dr Manuel Kaufman Boston, first vice president, Dr Jacob L Rudd, Boston, second vice president, Dr David C Ditmore, Boston, secretary, Dr Howard Moore Newton, treasurer, and Mary M O'Connor, Arlington, executive secretary——Officers elected at the spring meeting of the Atlantic Coast Line Railroad Surgeons Association include Dr Frank A Hoshal, Charleston, S C, president, and Dr Braswell E Collins, Waycross, Ga, secretary-treasurer

Marriages and Divorces Declining —For the third consecutive year both marriages and divorces in the United States declined in 1949 The figures, compiled by the U S Public Health Service, show 1,585,440 marriages and an estimated 386 000 divorces in the United States in 1949 Since 1946 when both marriages and divorces were at the highest level in this country's history, marriages dropped 30 8 per cent and divorces 36 7 per cent According to final figures there were 1 811 155 marriages in the United States in 1948 The provisional total for 1949 is 12 5 per cent below that figure The crude marriage rate for 1949 was 10 7 marriages per 1 000 population This was the lowest since 1939 and was 13 7 per cent smaller than the revised rate for 1948 of 12 4 marriages per 1 000 population The estimated total of 386 000 divorces for 1949 was 5 4 per cent below the final estimate for 1949 of 408 000 divorces The crude divorce rate for 1949 was estimated at 2 6 per 1 000 population, compared with 2 8 divorces per 1,000 population in 1948

First Quarter Mortality Rates Low —Despite a widespread outbreak of influenza and pneumonia, the lowest first-quarter death rate on record for the two diseases was established in 1950, according to the experience among the industrial policyholders of the Metropolitan Life Insurance Company The death rate was 23 2 per 100 000 as compared with 26 3 for the first three months of last year The rates were 50 and 78 6, respectively, for the quarters of 1946 and 1944 the two most recent years when influenza was epidemic New low first-quarter death rates were also recorded for tuberculosis the principal communicable diseases of childhood as a group syphilis appendicitis, gastritis and the complications of pregnancy and childbirth By contrast, slight increases, as compared with last year, were shown in the mortality from the diseases of the heart, arteries and kidneys which account for about half of all the deaths among the policyholders, and in the mortality from cancer, which ranks second among the causes of death An increase in motor vehicle accidents was counterbalanced by a decline in home and occupational mishaps to new low levels this year

Communicable Disease Report —According to the U S Public Health Service, reported incidence of whooping cough continued to increase for the week ended May 13 over the previous week, from 2,691 to 2,867 cases The total for the corresponding week last year was 1 054 and the five year (1945-1949) median was 1 965 The cumulative total for the first 19 weeks of the year was 49 977, which may be compared with the corresponding total of 19 094 for the same period last year and 51 914 for 1947, the highest on record for the past five years The corresponding five year median was 40 341 Reported incidence of tularemia increased from 17 for the previous week to 24 cases for the week ended May 13, the highest on record for the corresponding week in the last five years For the first 19 weeks of the year the cumulative total was 387, which may be compared with 458 cases for the same period last year and 590, the highest on record for past five years Arkansas reported 10 of the 24 cases for the week ended May 13 and Texas reported 4 cases Reported cases of acute poliomyelitis in the nation increased from 72 cases the previous week to 102 cases for the week ended May 13 The total for the week included 28 cases in California (from 14 to 28) and 38 cases in Texas (from 28 to 38)

Establish Registry of Hepatic Pathology —The American Gastroenterological Society has sponsored a registry of Hepatic Pathology at the American Registry of Pathology, a department of the Armed Forces Institute of Pathology administered under the auspices of the National Research Council The purpose of this registry is to collect liver specimens obtained by biopsy or autopsy accompanied with pertinent laboratory and clinical records Contributions of unusually interesting material from experimental animals are also desired This material will be available for research. The contributed material will be reviewed by the Armed Forces Institute of Pathology Contributors will receive an opinion concerning the material submitted based on studies by the institute staff in association with a group of civilian consultant pathologists especially interested in hepatic pathology Material for the registry should be submitted by or through a pathologist on forms obtained from the institute Contribution of the material will in no way interfere with its publication by the contributor himself Follow-up information on the submitted cases, as it becomes available, will be of great value in determining the course of disease and efficacy of treatment In the case of liver biopsy specimens, it is requested that one stained and five unstained sections be supplied, in autopsy material one stained section and either paraffin blocks or wet tissues are requested and gross photographs of the liver, when available It is essential that the fixative used be listed The material should be sent to the Director, Armed Forces Institute of Pathology, Washington 25 D C, Attention Registry of Hepatic Pathology

Diabetes Association Meeting —The annual meeting of the American Diabetes Association will be held at the Sir Francis Drake Hotel and the Hotel Whitcomb, San Francisco, June 24-25, under the presidency of Dr Howard F Root, Boston At the joint scientific program with the Association for the Study of Internal Secretions at the Drake on Saturday, the following program will be presented

Frank G Young D Sc Cambridge, England Growth Hormone and Experimental Diabetes

Jerome W Conn Ann Arbor Mich ACTH Diabetes in Man

Peter H Forsham George W Thorn Thomas F Frawley and Donald R. Wilson Boston Studies on Carbohydrate Metabolism in Adrenal Cortical Hypersecretion

Leslie L. Bennett Mr John E Whitney and Miss Constantine Glafkides Berkeley Calif Modification of the Metabolic Effects of Pituitary Adrenocorticotropic Hormone and Growth Hormone by the Administration of a Diet High in Potassium Chloride.

Randall G Sprague Harold L Mason Ph D and Marschelle H Power Ph.D Rochester Minn Observations on the Pathogenesis of Cushing s Syndrome

Oscar M Hechter Ph D Robert P Jacobsen Ph D Roger W Jeanloz, Ph D Mr H Levy Gregory G Pincus Sc D and Mr V Schenker Shrewsbury Mass Pathways of Corticosteroid Synthesis

W Stanley Hartroft Toronto Canada Islets of Langerhans in Man Visualized by Phase Contrast Microscopy

Elexious T Bell Minneapolis Incidence and Forms of Vascular Disease in Diabetes

At the Hotel Whitcomb Sunday the program will be

Mary B Olney Berkeley Calif Practical Aspects of Juvenile Diabetic Clinic Management

Joseph H Crampton Lester J Palmer, Clarence D Davis and William J Steenrod Jr Seattle Pregnancy in the Diabetic.

Francis D W Lukens Philadelphia Possible Dangers of Hyperglycemia

Maximillian Fabrykant and Benjamin I Ashe New York Arteriovenous Distribution of Glucose in Spontaneous Hypoglycemia

Frank G Young D Sc Cambridge England the Banting Memorial Lecture Endocrine Approach to the Problem of Diabetes

Edward S West Ph D Portland Ore Some Effects of Methylene Blue in Alloxan Diabetes

Alexander Marble and Miss Rachel S Leech Boston Total Hydrolyzable Cystine in Blood Serum in Diabetes

John E Howard Baltimore Some Observations and Thought on the Therapy of Diabetic Acidosis

Helen E Martin Maxine Wertman and Peter Hillier Los Angeles Potassium Deficits in Diabetic Acidosis.

Charles A Woerner Louisville Ky Experimental Changes in Stainable Hepatic Fat.

Frank S Perkin and collaborators Detroit Jet Injection of Insulin in Treatment of Diabetes Mellitus.

Edgar A Haunz and Mr D C Keranen Grand Forks N D Clinical Interpretation of Blood Sugar Values

Julius Pomeranze and Henry G Kunkel New York Serum Lipids in Diabetes Mellitus

At the banquet Saturday an address will be given on "Art and Science" by Dr Robert R. Newell, Stanford University, Calif

Marriages

James H Shumaker, Seville, Ohio, to Miss Donna Margaret Bailey of San Marino, Calif, in Pasadena, recently

Roy G Brown Onawa Iowa, to Miss Cherie Lou Veile of Harrison, Neb, at Crawford, Neb, March 5

Floyd Benjamin Merritt, Iowa City Iowa, to Miss Jacqueline Fitzgerald of Rolling Ridge, in April

Edmund Ludlow Keeney La Jolla, Calif, to Mrs Esther Wight Penniman of Baltimore, March 14

Harold J Peggs Jr to Miss Lola Elizabeth Conrad, both of Des Moines, March 26

Donald D Hoytt to Miss Marjorie Morton, both of Los Angeles recently

Deaths

Harry Friedenwald ⊕ emeritus professor of ophthalmology at the University of Maryland School of Medicine and College of Physicians and Surgeons of Baltimore, died at his home in Baltimore April 8, aged 85, of heart disease Dr Friedenwald was born in Baltimore Sept 21, 1864 He graduated from Johns Hopkins University in 1884 and received his medical degree from the College of Physicians and Surgeons in Baltimore in 1886 During the next two years he did postgraduate work in Vienna and in Berlin In 1890 he returned to this country and in 1894 became associate professor of ophthalmology and otology at the College of Physicians and Surgeons in Baltimore, in 1902 he succeeded his father as professor When this medical school was absorbed into the University of Maryland, he continued as professor of ophthalmology until 1929, when he became emeritus In 1907 and 1908 he was a member of the House of Delegates of the American Medical Association and in 1931-1932 chairman of the Section on Ophthalmology He was a specialist certified by the American Board of Ophthalmology and the American Board of Otolaryngology He was a member of the American Ophthalmological Society (president, 1937), a member of the American Academy of Ophthalmology and Otolaryngology, American Otological Society and the Association for Research in Ophthalmology He was an honorary fellow of the Jewish Academy of Arts and Sciences and a fellow of the American Association for the Advancement of Science and the American College of Surgeons In 1930 he gave the honorary Doyne lecture at the Oxford Ophthalmological Congress and in 1941 delivered the fourth annual de Schweinitz Lecture before the Section on Ophthalmology of the College of Physicians of Philadelphia He was ophthalmic surgeon to the Baltimore Eye, Ear and Throat, Charity, Mercy, Sinai and Union Memorial hospitals and the Hospital for Women In 1932 he received the honorary degrees of doctor of Hebrew letters from the Jewish Institute of Religion in New York and the honorary doctor of science from the University of Maryland He was president of the Hebrew Educational Society and the Federation of Jewish Charities, a member of the board of governors of Dropsie College in Philadelphia, and president of the Federation of American Zionists from 1904 to 1912 He was also chairman of the medical advisory board of Hadassah and director of the Jewish Theological Seminary of America Dr Friedenwald was the author of "Jewish luminaries in medical history and a catalog of works bearing on the subject of Jews and medicine from his library" in 1946 A collector of rare manuscripts on medicine and valuable autographs, Dr Friedenwald had presented his collection to a university in Palestine

Francis Randolph Packard ⊕ Philadelphia, born in Philadelphia, March 23, 1870, University of Pennsylvania Department of Medicine, Philadelphia, 1892, specialist certified by the American Board of Otolaryngology, at one time professor of otology at the University of Pennsylvania Postgraduate School of Medicine, veteran of the Spanish-American War and World War I, in 1931 president of the American Laryngological Association, which in 1942 bestowed on him its Newcomb Award, past president of the College of Physicians of Philadelphia, Library Company of Philadelphia and the American Otological Society, member of the American Philosophical Society and the American Laryngological, Rhinological and Otological Society, in 1931 delivered the fifth Weir Mitchell Oration before the College of Physicians of Philadelphia, in 1932 the William Potter Memorial Lecture at Jefferson Medical College and the Osler Oration at the meeting of the Canadian Medical Association and the Ontario Medical Association in Toronto, author of "History of Medicine in the United States," first edition in 1901 and second edition in 1919, "Diseases of the Ear, Nose and Throat" (1909), "School of Salerno" (1920), "Life and Times of Ambroise Pare" (1921) and "Some Account of the Pennsylvania Hospital", in 1915 editor of "Gold Headed Cane", editor of *Annals of Medical History* from 1917 to 1942, in 1939 received an honorary LL D degree from the University of Pennsylvania, affiliated with Pennsylvania Hospital, where he died April 18, aged 80

Elliott Miley Hendricks ⊕ Fort Lauderdale, Fla , born in Cincinnati, July 9, 1897, University of Cincinnati College of Medicine, 1922, specialist certified by the American Board of Radiology, member of the Radiological Society of North America and the American Association of Industrial Physicians and Surgeons, fellow of the American College of Radiology, charter member of the Florida Radiological Society, of which he has been vice president and secretary, honorary member of the Broward County Medical Association, served during World War I, member of the Selective Service Board during World War II, formerly associated with the U S Public Health Service, affiliated with Broward General Hospital, of which he was a founder, radiologist at White Cross Hospital Mount Carmel Hospital and the Franklin County Tuberculosis Hospital in Columbus, Ohio, 1924-1925, and superintendent of Edwards Hospital in Fort Lauderdale in 1926 and 1927, vice president of the First Federal Savings and Loan Association, died February 28, aged 52, of myocardial infarction

Walter Melville Pamphilon, New York, born in Toronto Ont, Canada, June 12, 1897 University of Toronto Faculty of Medicine, 1922, member of the American Psychiatric Association, past president of the Seneca County Medical Society, served in the British Navy during World War I joined the state service at Buffalo State Hospital on July 7, 1923 and resigned in 1928 to serve as neuropsychiatrist with the Buffalo Regional Office, U S Veterans Bureau, reinstated at Buffalo State Hospital a year later, subsequently served at Manhattan and Willard State hospitals, acting medical inspector, on leave from his post as assistant director of Willard, when named assistant commissioner of the state department of mental hygiene, died March 29, aged 52, of acute coronary thrombosis

John Franklin Hassig ⊕ Kansas City, Kan , born in Galena, Ill, Feb 21 1875, College of Physicians and Surgeons, Medical Department, Kansas City University, Kansas City, 1899, secretary and past president of the Kansas State Board of Medical Registration and Examination, past president and secretary of the Kansas Medical Society, served as president and vice president of the Federation of State Medical Boards, fellow of the American College of Surgeons, affiliated with St Margaret's, Bethany and Providence hospitals, surgeon, Southern and Chicago, Rock Island and Pacific railway companies, died in St Margaret's Hospital April 13, aged 75, of embolism

Clarence A Hartley Sr, Evansville Ind , born in 1873, George Washington University School of Medicine, Washington, D C, 1907, member of the American Medical Association, honorary member of the board of directors of the Vanderburgh County Tuberculosis Association, served as health officer of Evansville and Vanderburgh County, emeritus member of the staff of Deaconess Hospital, served on the staffs of St Mary's and Welborn Baptist hospitals, a founder of Boehne Tuberculosis Hospital, died April 7, aged 76, of coronary thrombosis

John Light Atlee ⊕ Lancaster, Pa , University of Pennsylvania Department of Medicine, Philadelphia, 1900, member of the American Association for the Surgery of Trauma, fellow of the American College of Surgeons, a trustee of Franklin and Marshall College, affiliated with the Lancaster General Hospital, formerly medical director of St Joseph's Hospital, died in Jefferson Hospital April 3, aged 74, of carcinoma of the esophagus

William Boyd Baker, Cumberland, Md , Medical College of the State of South Carolina, Charleston, 1914, served overseas during World War I, medical examiner for the Baltimore and Ohio Railroad, died March 12, aged 61

Samuel Barclay ⊕ New York, L R C P and L R C S of Edinburgh and L R F of P & S, Glasgow, Scotland, 1940, attached to the medical corps of the British Army during World War II, served in the Middle East and North Africa, taking part in the invasion of Italy, affiliated with Morrisania City Hospital and the Bronx Eye and Ear Infirmary, died March 26, aged 36, of coronary thrombosis

Claud Douglas Barkley ⊕ State Line, Miss , Atlanta School of Medicine, 1913, served during World War I, died in Laurel March 7, aged 58

William Henry Betz, Bellevue, Neb , Omaha Medical College, 1900, served during World War I, in 1932 received the local American Legion award for "outstanding service to the community over a period of more than 30 years", died March 6, aged 82

Henry Renick Brown ⊕ Chillicothe, Ohio, University of Michigan Department of Medicine and Surgery, Ann Arbor, 1901, for many years member of the city board of health, served during World War I, affiliated with Mount Logan Sanatorium and Chillicothe Hospital, died April 4, aged 71, of coronary thrombosis

James Hollis Crowley, Providence, R I , Tufts College Medical School, Boston, 1938, member of the American Medical Association, died April 3, aged 40, of heart disease.

Eleanor *McNair* Hutchinson Decker, Toledo, Iowa, Drake University College of Medicine, Des Moines, 1913, affiliated with the State Juvenile Home Hospital, died in Tama April 3, aged 71, of coronary heart disease and arteriosclerosis

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⊕ Indicates Fellow of the American Medical Association

Joseph Deutsch, Cleveland, Western Reserve University School of Medicine Cleveland, 1920, died March 8, aged 58

Edward Oliver Elmer, Hartford Conn, College of Physicians and Surgeons Baltimore, 1894 member of the American Medical Association served on the staff of Hartford Hospital, died in West Hartford April 3, aged 82, of coronary thrombosis

Charles C Emerson, St Louis, St Louis College of Physicians and Surgeons 1903 died March 13, aged 76

Preston Wiley Fishbaugh, Mendon, Ohio, College of Physicians and Surgeons Baltimore, 1893, served on the school board, formerly affiliated with Gibbons Hospital in Celina, Van Wert (Ohio) Hospital and Lima Memorial Hospital in Lima, died March 25, aged 86, of arteriosclerosis

Charles Biglow Frisbie ⊕ Portland, Ore, Rush Medical College, Chicago 1901, at one time on the faculty of Drake University College of Medicine Des Moines affiliated with Portland Sanitarium died March 29, aged 74, of pneumonia following an accident

Allen Gilbert Gantt, Pittsburgh Western Pennsylvania Medical College, Pittsburgh, 1901, died March 14, aged 83

Sarah Garrett-Bangsberg, La Crosse Wis, Woman's Medical College of Pennsylvania, Philadelphia, 1911, member of the American Medical Association, for many years dean of women and school physician at the La Crosse State Teachers College died April 1, aged 74, of cerebral hemorrhage

John J Gibson, Alexandria, Ind Queen's University Faculty of Medicine, Kingston, Ont, Canada, 1893, member of the American Medical Association affiliated with St John's Hickey Memorial Hospital in Anderson died March 24, aged 84, of cerebral hemorrhage

Charles Fitzgerald Goltry, Russell, Iowa, National Medical University Chicago, 1907, Bennett College of Eclectic Medicine and Surgery Chicago, 1908 member of the American Medical Association, died in Chariton March 12 aged 87

Frederic Lloyd Grover, Hartland, Wis, Marquette University School of Medicine, Milwaukee, 1925, member of the American Medical Association, past president and served as secretary of the Waukesha County Medical Society, village health officer, affiliated with the Waukesha (Wis) Memorial Hospital died April 1, aged 51, of cerebral hemorrhage

Wilbur Claire Hafford, Waycross, Ga, University of Louisville (Ky) School of Medicine, 1911, member of the American Medical Association, past president of the Ware County Medical Society affiliated with Ware County Hospital, where he died February 26 aged 63 of pulmonary embolism

Charles Lloyd Harsha ⊕ Canonsburg, Pa, Jefferson Medical College of Philadelphia, 1903, member of the House of Delegates of the American Medical Association in 1922, on the staff of the Canonsburg General Hospital, died March 20, aged 74, of pulmonary carcinoma

Nathaniel Stretcher Hires, Salem, N J, University of Pennsylvania Department of Medicine, Philadelphia, 1894, died in Ivy Hall Sanitarium in Bridgeton March 13, aged 79, of cardiovascular renal disease

James P Hitt, Tunica, Miss Memphis (Tenn) Hospital Medical College 1890 member of the American Medical Association, past president of the Sixth District Medical Association died March 12, aged 89

William Peter Hombach, Council Bluffs Iowa, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois 1901, member of the American Medical Association, for many years on the staff of Mercy Hospital died March 15 aged 87

John Ewing Hughart, Hilton Village, Va, University College of Medicine, Richmond 1904, died March 31, aged 75

Byron Merle Hutchings, Terre Haute, Ind, Medical College of Indiana Indianapolis, 1903, member of the American Medical Association fellow of the American College of Surgeons affiliated with St Anthony's Hospital, died in Culver Hospital Crawfordsville, April 5 aged 70, of cirrhosis of the liver

John Fay Hyde ⊕ Omaha University of Nebraska College of Medicine Omaha 1907, affiliated with the Nebraska Methodist Hospital where he died March 23, aged 65 of cerebral hemorrhage

Harry Demuth Jackson ⊕ Circleville Ohio, Starling Ohio Medical College, Columbus 1911, president of the Pickaway County Medical Society served during World Wars I and II, member of the board of directors of Berger Hospital, died March 23, aged 67, of heart disease.

Ishmael W Johnson, Stanton, Ky, Hospital College of Medicine, Louisville 1901, died in the Winchester Convalescent Home in Winchester March 14, aged 75, of uremia and diabetes mellitus

Clem H Jones, Galena, Kan (licensed in Kansas in 1901), member of the American Medical Association, died March 29 aged 84, of chronic nephritis and heart disease.

Richard Kittle, Cleveland, Cleveland Medical College, 1896, died February 18, aged 82, of coronary and cerebral thrombosis

Paul Howard Kleinhans ⊕ Bethlehem, Pa, University of Pennsylvania School of Medicine, Philadelphia, 1912, affiliated with St Luke's Hospital, where he died April 4, aged 61, of hypertension

Joseph Eugene Larochelle, Manchester, N H, Laval University Faculty of Medicine, Quebec, Canada, 1896, member of the American Medical Association fellow of the American College of Surgeons, affiliated with Notre Dame de Lourdes Hospital in Manchester and the Hillsborough County General Hospital, Grasmere, died April 3, aged 78, of cerebral thrombosis and arteriosclerosis

Edward King Lawrence, Hiawatha, Kan, Lincoln (Neb) Medical College of Cotner University, 1903, member of the American Medical Association, veteran of the Spanish-American War and World Wars I and II, died in the Horton (Kan) Hospital February 21, aged 68, of cerebral hemorrhage

Gerald Hastings McMahon, Detroit, Detroit College of Medicine, 1909, formerly vice president and in 1939 president of the International Association of Police and Fire Surgeons, for many years medical officer for the city fire department, on the staffs of St Mary's and Harper hospitals, died March 30 aged 65, of cerebral hemorrhage

Daniel William Miller ⊕ Blackwell, Okla, Kansas City (Mo) Homeopathic Medical College, 1901, past president of the Oklahoma State Board of Medical Examiners, on the staff of Blackwell Hospital, deid February 26, aged 82

Albert Perley Norris ⊕ Cambridge, Mass, Harvard Medical School, Boston, 1903, formerly milk inspector and medical inspector of the board of health for the city of Cambridge died March 29, aged 75, of arteriosclerosis

James Hinton Pennington ⊕ Dodge City, Kan, Emory University School of Medicine, Atlanta, Ga, 1923, member of the Kentucky State Medical Association, died in St Anthony's Hospital March 8, aged 49, of acute myocardial failure

William A Ray, Portsmouth, Ohio, Medical College of Ohio, Cincinnati, 1897, member of the American Medical Association, American Heart Association and the Hempstead Academy of Medicine, affiliated with Schirrman and the Portsmouth General hospitals died March 23, aged 77, of heart disease.

William Rigelhaupt ⊕ Cleveland, Western Reserve University Medical Department, Cleveland, 1911, a trustee of the Cleveland Medical Library, affiliated with Lutheran Hospital, where he died April 9, aged 68, of cerebral hemorrhage

Edward John Scannell, East Andover, N H, Dartmouth Medical School, Hanover, N H, 1901, veteran of the Spanish-American War and World War I, died April 11, aged 74, of Hodgkin's disease

Jesse David Schwartz ⊕ New York, Cornell University Medical College, New York, 1910, served on the staffs of the Hospital for Joint Diseases, Mount Sinai Hospital and Jewish Memorial Hospital, died April 8, aged 62, of coronary thrombosis, cerebral hemorrhage and diabetes mellitus

Daniel Webster Shumaker, Dover, Ohio, Ohio Medical University, Columbus, 1898, member of the American Medical Association, fellow of the American College of Surgeons, affiliated with Union Hospital, died in Grant Hospital Columbus March 28, aged 80, of acute posterior myocardial infarction

Charles C Slaughter, Kansas City, Mo, Kansas City College of Medicine and Surgery, 1921, died in Butler March 27, aged 63, of paralysis and nephritis

Jesse Glen Smith, Sioux Falls, S D, University of Louisville (Ky) School of Medicine, 1943, served during World War II, member of the American Medical Association, died recently, aged 40, of Hodgkin's disease.

Orrick E Smith, St Louis Marion-Sims College of Medicine St Louis, 1891, died March 31, aged 84

John Samuel Stults, Altus, Okla, Missouri Medical College St Louis, 1894, member of the American Medical Association died in Jackson County Memorial Hospital March 9, aged 85, of carcinoma of the colon

Foreign Letters

SWEDEN

(From a Regular Correspondent)

Stockholm, April 14, 1950

Decreasing Pneumonia Mortality

Dr Gunnar Berg has published in the *Journal of the Swedish Medical Association* some statistical research under the heading "Can the Effect of Chemotherapy and Antibiotics be Deduced from the Official Statistics of the Mortality from Pneumonia?" He notes that modern chemotherapy for pneumonia began tentatively in 1937 in Sweden, but it was not until 1939 that this treatment received general application Penicillin and other antibiotics could be expected to influence the pneumonia mortality only from 1944 The period chosen for this investigation was 1931-1946, the year 1931 being chosen as the starting point as it was in this year that certain changes were made in Sweden in the nomenclature of the causes of death

Dr Berg has used two methods of calculation One, which he prefers, consists of comparing the number of deaths from pneumonia with the total number of deaths from all known causes According to the other method, a count is made of all the deaths from pneumonia every year per 100,000 population Dr Berg is aware of the pitfalls inherent in such a study and points out that many other factors than the specific treatment given may have played an important part in decreasing the pneumonia mortality with such impressive effect in the period under review The incidence of pneumonia, fluctuations in the virulence of the offending germs and changes in the powers of resistance to them in the human body may all have played an important part But the sustained fall in the pneumonia mortality over so many years must, he holds, surely reflect, to some extent at any rate, the influence of modern treatment. He concludes, "The mortality is now hardly more than half what it was in the beginning of the 1930s"

Austrian Doctors to Sweden

The proposal that the present shortage of doctors in Sweden should be alleviated by the importation of Austrian doctors—already referred to in these columns—is frowned on by various scientific bodies such as faculties of medicine A memorandum on the subject from the Faculty of Medicine of Uppsala emphasizes that whatever Austria can spare of its surplus doctors cannot be expected to represent the best of the profession If some 200 Austrian doctors are added to some 350 foreign doctors already in Sweden, more than 10 per cent of the medical profession in Sweden would be foreigners As for the present shortage of doctors in Swedish asylums, it has been suggested that the law of supply and demand should be obeyed by improving the conditions under which asylum doctors work There are not enough of them simply because the housing and remuneration offered them are inadequate, and to rush foreign doctors into this service is to dodge the major issue of its administration In Denmark there is a surplus of doctors at the moment, they would encounter fewer linguistic difficulties, as Danish and Swedish languages are somewhat similar

Various other official bodies are also rather unreceptive It is reported that the proposed importation of Austrian doctors is only part of the major issue, which is the socialization of medicine in Sweden—the creation of a state medical service with doctors acting as the whole-time servants of the state instead of being relatively independent members of the community The Swedish Medical Association is often the target for abuse in the lay press on account of the measures it takes to safeguard the best interests of the medical profession Dr Stig Holm, writing in a recent number of the *Journal of the Swedish Medical Association* on the subject of the importation of foreign doctors, voices the opinions of many of his colleagues when he writes that the present so-called shortage of doctors is more apparent than real and is a reflection of unsatisfactory remuneration, housing and conditions of work for certain groups of doctors He also deplores a policy of taxation which diminishes the output of work and the growing bureaucracy, which entails waste of effort In his opinion, only one year's output of Swedish doctors is needed to fill the present gap in the medical profession

A Swedish Museum for the History of Medicine

Speaking at a meeting of the Swedish Medical Association last December, Dr Olaf Sjoqvist traced the somewhat sporadic efforts which have been made in Sweden since 1908 to create a Swedish museum of the history of medicine At present there are more than 10,000 exhibits stored away in different buildings, and the Swedish Medical Association alone is in possession of some 7,000 such exhibits There is also the priceless collection of instruments belonging to the Serafimer Hospital The Serafimer Hospital, or part of it, has been suggested as a place for a museum with a qualified curator

Societas Medica Scandinavica

The recent creation of Societas Medica Scandinavica reflects the need for a central organization to act as a clearing house for various medical problems in the Scandinavian countries The sponsors of this new body have put on its program the following items (1) educational problems and the exchange of students and teachers, (2) scientific activities, (3) preventive medicine, (4) hospital problems and exchange of doctors, (5) medical publications and (6) a library and film service The headquarters of this organization may be in Gothenburg

BELGIUM

(From a Regular Correspondent)

Liége, April 14, 1950

Brachialgia and Disk Hernia

Ectors pointed out to the Belgian Society of Neurology that of 144 cases in which disk hernia had caused only a root syndrome, without compression of the spinal medulla or of the cauda equina, and which were operated on, there were only 4 in which the hernia involved the cervical region, in the remaining 140 cases the herniation involved a lumbar intervertebral disk Intervertebral disk herniation of the cervical region differs from that of the lumbar region in that in the former the nerve roots pass out horizontally, and the cervical part of the spinal column does not participate in the movements of the upper extremities, while the lumbar part of the spinal column plays a preponderant role in the movements of the lower extremities

Music in the Sanatorium

In an article recently published in *Le Scalpel,* Toussaint reports the results of the treatment of tuberculosis at the Waterloo Sanatorium In spite of the therapeutic interventions and the chemotherapeutic discoveries, the treatment is still based on prolonged rest of body and mind Experience shows that the mental condition of the patient must not be neglected, if left to himself, he runs the risk of becoming depressed and of suffering spiritual and moral damage Music seems particularly useful in the cure of tuberculous patients during the periods of fatigue and weakness During this time the patient can scarcely read or talk, and it seems that music would be an easy language, addressed more to his imaginative and emotional being than to his mind, which remains still definitely depressed by the sickness Music, by occupying the patient's mind, will help the physician to canalize an intellectual and emotional activity which remains without object for too many hours

The author believes that classical music should be given a place beside literature and should be distributed through libraries, since such entertainment is of considerable value for patients kept totally inactive for five or six hours daily

National Conference on Social Service

The second National Conference on Social Service was held under the chairmanship of Dr Rene Sand, who was one of the first to study rehabilitation of the sick and disabled in Belgium Numerous reports were made on the subject by specialists, who stressed the necessity of integrating the various aspects of medical therapeutics during convalescence. Many methods of treatment ought not to be used successively but should be integrated as a whole. Physical therapy, rehabilitation, occupational readaptation must be planned and put into action during convalescence

Dr Lebrun summarized the results of the efforts made toward rapid rehabilitation of those injured in industrial accidents and mentioned his studies on work therapy for cardiac patients He cited a series of occupations which on first sight may seem suitable for cardiac patients but in reality, because of the nervous tension involved, are tiring He then dealt with the proper posture of workers in certain occupations and mentioned seats specially designed for watchmakers, who often have heart disease late in life because of the particular posture they adopt during their work

Dr Michotte, chief of the service for rheumatic diseases at Sainte-Elisabeth, who demonstrated the necessity of rehabilitation for rheumatic patients, stressed that, statistically, rheumatism incapacitates many persons and that their rehabilitation is of primary importance He also suggested that the supervision and reeducation of children with acute articular rheumatism ought to be extended for at least three years

Dr L Konings stressed the need of extending retraining not only to those with impaired locomotion but also to the sick A great number of circulatory diseases, respiratory ailments, nervous disorders, diseases of the locomotor apparatus and occupational diseases are also amenable to reeducation However, they create more complex problems They require therapeutic centers with special personnel and complicated and specialized equipment For this reason, work therapy shops should be attached to hospitals or university centers rather than to factories

The conclusions of this reunion were summed up by Minister Troclet, who explained the mechanism of the legal provisions which guarantee to the disabled the right of gaining their livelihood on an equal basis with normal persons He expressed his confidence in the medical problem of rehabilitation and stressed the necessity of providing occupation for the period between the discharge from the hospital and entrance into a workshop for apprenticeship

Occupational Asbestosis

At the Belgian Society of Industrial Medicine, Clerens reported on his experience in the medical supervision of workers exposed to asbestos dust. His report includes the counting and measuring of dust, the investigations on asbestos particles in sputum and the functional roentgenologic and electrocardiographic examination of workers He presents a statistical report of 75 subjects selected among workers most exposed to the inhalation of dangerous dusts He encountered among these 70 normal subjects, 4 doubtful ones and 1 with pulmonary asbestosis He concludes that in the fiber cement industry, radiologic pictures of pulmonary asbestosis as presented in classic descriptions are absent The picture presented is more like that of fibrous bilateral pulmonary tuberculosis The author supports this opinion with radiologic and anatomicopathologic records

BRAZIL

(From a Regular Correspondent)

São Paulo, April 21, 1950

Germicidal Efficiency of Antiseptic Agents

A study of germicidal efficiency of antiseptic agents was performed by Drs Salomão Chaib and Humberto Cerrutti in the Hospital N S Aparecida of São Paulo

After their researches they concluded in part

The human skin normally has bacteria on it, and these bacteria and the percentage of their occurrence, are

Coagulase negative nonhemolytic Staphylococcus albus	80
Bacillus subtilis	70
Nonhemolytic Staphylococcus aureus	25
Nonhemolytic Streptococcus	20
Coagulase negative hemolytic Staphylococcus	20
Coagulase positive hemolytic Staphylococcus albus	15
Coagulase positive hemolytic Staphylococcus aureus	5
Escherichia coli	5

Although most of the bacteria are nonpathogenic, coagulase-positive micrococci are frequent, indicating that strict control of antisepsis is necessary

Nerve Compression and Paresthesias

To explain why ischemia produced by compression at the proximal part of the forearm or at the wrist does not cause sensory disturbances identical to those observed in compression at the upper arm, several experiments were made by Dr Eros Erhart of the Anatomical Department of the Medical School of São Paulo The method used was essentially that of Lewis and Pochin Circulation was blocked at different levels of the limb by application of a pressure of 200 mm. of mercury with a sphygmomanometer cuff, compression of the median, ulnar and tibial nerve trunks was made with the aid of a small cushion under the cuff

All experiments showed that, in addition to causing ischemia, the nerve compression increases the paresthetic effects of the release pricking In this respect the results of Dr Eros Erhart differ somewhat from those of other investigators, including those recently published by Merrington and Nathan

Concerning the field of origin of the paresthesia, his results seem to corroborate Lewis' hypothesis that the ischemic and postischemic conditions of the nerve trunk are responsible for such paresthesias His experiments showed, however, that compression of the nerve itself adds to the ischemic condition and increases the paresthesia, in the cutaneous field of the compressed nerve.

Regarding the mechanism of the paresthesias, he must admit with Weddell that the several mechanical conditions at the different levels of the limbs have great importance in determining different paresthesias, caused by proximal or distal blocking However, he observed that it is not the mechanical action on the blood vessels as Weddell admits, but the mechanical effect on the nerve trunk itself that determines the typical ischemic and postischemic paresthesias, as shown by his results

Correspondence

BOTTLE FEEDING

To the Editor —Dr Philip C Jeans in his excellent summary on the "Feeding of Healthy Infants and Children" (J A M A **142** 810 [March 18] 1950) makes a statement to which I take exception He writes, "The continuance of bottle feeding after the first year is not good feeding practice and is usually evidence that other environment factors are faulty"

I believe that this expression if taken literally might result in psychologically undesirable attitudes in the management of infants Dr Jeans omits mention of a fundamental aspect of growth and development, with which I know he is familiar Babies mature both physically and psychologically in a more or less constant pattern but at a pace which, within normal limits, varies with each baby It is obvious that the sucking needs of well managed, undisturbed babies vary greatly Some infants show a willingness to give up sucking at an age as early as 7 or 8 months Others with no faulty environmental factors cling avidly to their bottles until well into the second year This is especially true of the bedtime bottle

Dr Jeans' statement without modification might be interpreted as meaning that either a baby should be off his bottle at a year or else he is being poorly handled Some babies easily and readily give up their bottles at 15 months, whereas it would seem that at 1 year no power on earth could accomplish this end Forceful weaning earlier might have been deeply disturbing to the infant Some babies become fretful and sleep poorly Many, with still unsatisfied sucking needs, substitute the thumb for the nipple from which they have been separated and suck in this manner for a long time to come Others stubbornly refuse milk and continue to do so for many years The psychologic trauma of this frustration has deeper personality implications, of which psychiatrists are well aware

Alfred S Schwartz, M D, St Louis

ASTHMA

To the Editor —Dr Piness's discussion of Dr Rackemann's paper, "Other Factors Besides Allergy in Asthma" (J A M A **142** 534 [Feb 25] 1950), deserves further emphasis in view of the fact that the latter's concept of intrinsic asthma is widely shared by leading allergists and has resulted in confusion How vaguely this syndrome is defined is indicated by the fact that the term was first adopted to indicate asthma with negative skin reactivity, which is observed in about 50 per cent of all asthmatic patients (Rackemann, F M *J Lab & Clin Med* **12** 1185, 1927) Cohen (Ann Int Med **20** 590 [April] 1944) considered intrinsic asthma a disease with such a serious prognosis that treating it would be a waste of the physician's time and the patient's money Rackemann on the other hand, notes in his present publication, that his patients recover His basis of distinguishing intrinsic from extrinsic asthma is "age above 40" Some clinicians carelessly label as "intrinsic" allergic asthma associated with infection, because this is a common complication of allergic asthma in older persons and because infection tends to reduce the patient's ability to exhibit positive skin reactions Others hold that intrinsic asthma is due to causes originating inside the system, in contradistinction to asthma from extraneous causes, such as pollen or food Yet, it is doubtful that there are cases of asthma originating exclusively from one group of causes Some authors reporting cases or statistics on intrinsic asthma demonstrate their awareness of this fact when speaking of a "borderline" group embracing the bulk of their cases, which they term "the intrinsic-extrinsic" type or "the extrinsic-intrinsic" type It has recently become customary to link intrinsic asthma with the production of histamine within the system and with Selye s alarm reaction However, no one has ever presented evidence that these features are characteristic of "intrinsic" asthma

In a thorough search of 1,442 cases of bronchial asthma (*Ann Int Med* **26** 863 [June] 1947), reference to which is usually avoided by the proponents of intrinsic asthma, I failed to find a single patient whose case would fulfil the criteria of this syndrome as established by Rackemann or by Cohen, nor was I able to find a single detailed case report in the literature of intrinsic asthma, the diagnosis of which would stand up under careful scrutiny

There is asthma from bacterial and fungous infection, from endocrine and thermic sources, there is a congenital tendency to emphysema and to cystic lungs, and there are many other pulmonary diseases in which wheezing is a cardinal symptom They are constantly dumped into the melting pot of intrinsic asthma This greatly hampers the understanding of asthma Furthermore, I know of cases in which it has actually led to disaster

George L Waldbott, M D, Detroit

Medical Motion Pictures

FILM REVIEW

Journey Back (Edward Lundquist—Hemiplegic) 16 mm, black and white sound showing time 27 minutes Prepared and produced in 1949 by the Department of Medicine and Surgery Veterans Administration Procurable on loan from Chief Medical Illustration Division Research and Education Service, Veterans Administration, Washington *D C*

The picture tells the story of rehabilitation of a hemiplegic patient from the time he enters the hospital until the time of his discharge The psychologic problems of the patient and of his wife are considered at some length, and the steps required for rehabilitation of this patient physically, mentally, socially and vocationally are well outlined The patient undergoes medical examination, neurologic examination and personality tests and physical treatment (passive exercise, then active movement) and finally is transferred to the rehabilitation service for more extensive physical therapy, proper corrective exercise and motivation toward recovery Speech therapy appropriately is stressed It shows how the patient progresses to the point where he takes his first steps, learns balance and coordination and self care and finally achieves the ability to walk again Various recreational programs which aid in the motivation of the patient are described The patient's and his wife's fears that he cannot return to activity are finally overcome, and vocational guidance finally prepares him for return to active citizenship in a new vocation which is compatible with his residual physical disability It is concluded that of 88 patients having hemiplegia who received treatment under this rehabilitation program, 60 achieved from 85 to 100 per cent self care, others showed lesser percentages of improvement, and only 6 showed little or no improvement

The acting is overdramatized at one or two points, but on the whole the presentation is clear and convincing Good rehabilitation in any general hospital is a task which must be performed by a team of physicians including primarily the specialist in physical medicine, the neurologist and the orthopedist and often the neurosurgeon, the urologist, the internist and a number of other medical specialists The film is an excellent one and should be viewed by every physician who is interested in the rehabilitation of seriously disabled persons and specifically in the problem of the rehabilitation of the patient having hemiplegia The photography and sound recording are of good quality, and the script is well arranged

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners *Parts I and II* Various locations June 19 21 *Part III* Twenty nine centers June 6 29 Registration closes on May 6 Exec Sec Mr E S Elwood 225 S 15th Street Philadelphia

EXAMINING BOARDS IN SPECIALTIES

American Board of Anesthesiology *Written* Various locations July 21 *Oral* Chicago Oct. 8 11 Sec Dr Curtiss B Hickcox 745 Fifth Ave. New York 22

American Board of Dermatology and Syphilology *Written* Various locations Sept 14 *Oral* Detroit Oct. 20 22 Sec. Dr George M Lewis 66 East 66th St New York 21

American Board of Internal Medicine *Oral* San Francisco June 21 23 The oral examinations in the subspecialties will be held at the same time and places. *Written* Oct 16 Asst. Sec Dr William A Werrell 1 West Main Street Madison 3 Wis

American Board of Neurological Surgery Chicago Oct 1950 Applications no longer accepted Sec. Dr W J German 789 Howard Ave New Haven Conn

American Board of Ophthalmology *Written.* Various Centers January 1951 Final date for filing applications is July 1, 1950 Chicago Oct 2 6 *West Coast Jan 1951* Sec. Dr Edwin B Dunphy 56 Ivie Road Cape Cottage Maine

American Board of Orthopaedic Surgery *Part II* Chicago Jan 25 26 Final date for filing applications is Aug 15 1950 Sec Dr Harold A Sofield 122 South Michigan Avenue Chicago 3

American Board of Otolaryngology Chicago October Sec Dr Dean M Lierle University Hospital Iowa City

American Board of Pathology St Louis Oct 13 14 Sec Dr Robert R Moore 507 Euclid Ave St. Louis 10

American Board of Pediatrcs *Written* San Francisco June 30 July 2 *Oral* Chicago Oct 13 15 and Boston Dec 1 3 Exec. Sec. Dr John McK Mitchell 6 Cushman Road Rosemont Pa

American Board of Physical Medicine and Rehabilitation *Oral and Written* Boston Aug 26-27 Final date for filing applications is April 1 Sec. Dr Robert L. Bennett 30 N Michigan Ave Chicago

American Board of Plastic Surgery *Oral* May June Sec Dr Louis T Byars 4647 Pershing Avenue St. Louis Mo

American Board of Psychiatry and Neurology San Francisco June 23 24 Applications no longer accepted. Next examination December 1950 Final date for filing applications is Sept. 1

American Board of Radiology *Oral* Chicago week of June 18. Sec Dr B R Kirklin 102 110 Second Ave. S W Rochester Minn

American Board of Surgery *Written* Various centers Oct. 25 Final date for filing applications is July 1 Sec. Dr J Stewart Rodman 225 South 15th Street Philadelphia

American Board of Urology Chicago Feb 10-14, 1951 Final date *for filing applications is Sept 1 1950* Sec. Dr Harry Culver 7935 Sunnyside Road Minneapolis 21

BOARDS OF MEDICAL EXAMINERS

Alabama *Examination* Montgomery June 27 29 Sec. Dr D G Gill 519 Dexter Avenue Montgomery

Alaska * Juneau Sept 5 Special examinations given on application Sec Dr W M Whitehead Box 140 Juneau

Arkansas *Examination* Little Rock June 8 9 Sec Dr Joe Verser Harrisburg Homeopathic Little Rock June and November Sec., Dr Carl S Bungart 105 N 14th St Fort Smith *Eclectic* Little Rock June 8 9 Sec Dr Clarence H Young 1415 Main Street, Little Rock.

California *Examination Written* San Francisco June 19 22 Los Angeles Aug 21 24 Sacramento Oct. 16-19 *Examination Oral and Clinical for Foreign Medical School Graduates* San Francisco June 18, Los Angeles Aug 20 San Francisco Nov 12 *Reciprocity, Oral Examination* San Francisco June 17 Los Angeles Aug 19 San Francisco Nov 11 Sec. Dr Frederick N Scatena 1020 N Street, Sacramento 14

Connecticut * *Examination* Hartford July 11 12 Sec. to the Board Dr Creighton Barker 160 St. Ronan St. New Haven *Homeopathic* Derby July 11 12 Sec Dr Donald A Davis 38 Elizabeth St. Derby

Delaware *Examination* Dover July 11 13 *Reciprocity* Dover July 20 Sec Dr J S McDaniel 229 S State St. Dover

Florida * Jacksonville June 25 27 Sec. Dr Frank D Gray 12 N Rosalind Avenue, Orlando

Georgia *Examination* Atlanta and Augusta June. *Endorsement.* Atlanta June Sec Mr R C Coleman 111 State Capitol Atlanta 3

Hawaii *Examination* Honolulu July 10-13 Sec. Dr L L. Tilden, 1020 Kapiolani St Honolulu

Idaho Boise July 10 Sec Mr Armand L. Bird 305 Sun Bldg., Boise

Illinois Chicago June 13 15 Superintendent of Registration Mr Charles F Kervin Capitol Building Springfield

Indiana *Examination* Indianapolis June. Sec., Dr Paul R. Tindall, 1138 K of P Bldg., Indianapolis.

Iowa * *Examination* Iowa City June 12 14 Sec., Dr M A. Royal 506 Fleming Building Des Moines 19

Kansas Kansas City June 7 8 Sec Dr J F Hassig 905 N 7th Street Kansas City

Kentucky *Examination* Louisville, June 14 16 Sec., Dr Bruce Underwood 620 S 3rd Street Louisville 2

Louisiana New Orleans June 8-10 Sec. Dr Roy B Harrison 1507 Hibernia Bank Bldg New Orleans

Maine *Examination and Reciprocity* Augusta, July 11 12 Sec. Dr Adam P Leighton 192 State St Portland

Maryland *Examination* Baltimore June 20 23 Sec. Dr Lewis P Gundry 1215 Cathedral Street Baltimore 1 *Homeopathic* Baltimore, June 20 21 Sec Dr John A Evans 612 W 40th St Baltimore

Massachusetts *Examination.* Boston July 11 14 Sec. Dr George L Schadt, Room 37 State House Boston 33

Michigan * *Examination* Ann Arbor and Detroit June 12 14 Sec. Dr J Earl McIntyre 100 W Allegan St Lansing 8

Minnesota * *Written Special Examination* Minneapolis June 13 15 *Regular Examination* Minneapolis June 20 22 Sec. Dr J F Du Bois 230 Lowry Medcal Arts Building St. Paul 2

Mississippi Jackson June 20 21 Asst Sec Dr R N Whitfield Jackson 113

Missouri *Examination* St Louis June 7 9 Exec Sec. Mr John A Hailey Box 4 State Capitol Building Jefferson City

Nebraska * *Examination* Omaha June 5 7 Director Bureau of Examining Boards Mr Oscar F Humble, 1009 State Capitol Building Lincoln 9

Nevada *Endorsement* Carson City August 7 Sec Dr George H Ross, 112 Curry Street Carson City

New Hampshire Concord Sept. 13 Sec Dr John Samuel Wheeler 107 State House Concord

New Jersey *Examination* Trenton June 20 23 Sec., Dr E. S Hallinger 28 West State Street, Trenton

New Mexico * Santa Fe Oct 9 10 Sec Dr Charles J McGoey Coronado Building Santa Fe

New York *Examination* Albany Buffalo, New York and Syracuse, June 27 30 Sec Dr Jacob L. Lochner Jr 23 S Pearl St Albany

North Carolina *Written* Raleigh June 19 22 *Endorsement* Raleigh June 19 Sec Dr Ivan Procter 226 Hillsboro Street Raleigh.

North Dakota *Examination* Grand Forks July 5 7 *Reciprocity* Grand Forks July 8 Sec Dr C. J Glaspel Grafton

Ohio *Examination* Columbus June 14 17 Sec. Dr H. M Platter 21 W Broad St. Columbus 15

Oklahoma * *Examination* Oklahoma City June 7-8 Sec., Dr Clinton Gallaher 813 Braniff Building Oklahoma City

Oregon * Portland July 6-8 Sec Mr Howard I Bobbitt, 609 Failing Building Portland

Pennsylvania *Examination* Philadelphia and Pittsburgh July 11 14 Act. Sec Mrs Marguerite G Steiner 351 Education Bldg Harrisburg

Puerto Rico *Examination* Santurce Sept. 5 Sec. Mr Luis Cueto *Coll Box 3717* Santurce.

Rhode Island * *Examination* Providence July 6-7 Sec Mr Thomas B Casey 366 State Office Building Providence.

South Carolina *Examination* Columbia June 26-29 *Reciprocity* First Monday of each month Sec. Dr N B Heyward 1329 Blanding Street, Columbia

South Dakota * Sioux Falls July 18-19 Sec. Dr C E. Sherwood, 300 First National Bank Bldg Sioux Falls

Tennessee * *Examination* Nashville June 6-7 Sec, Dr H W Qualls 1635 Exchange Building Memphis

Texas * *Examination* Austin June 19 21 Sec., Dr M H Crabb 1714 Medical Arts Bldg Fort Worth 2

Utah *Examination* Salt Lake City June Dir Dr Frank E Lees, 324 State Capitol Building Salt Lake City

Vermont *Examination* Burlington June 13 15 Sec Dr F J Lawliss Richford

Virginia *Examination.* Richmond June 23 24 *Endorsement* Richmond June 22 Sec. Dr K. D Graves 631 First St. S W Roanoke.

West Virginia *Examination* Charleston July 10 12 Sec, Dr N H Dyer Capitol Bldg Charleston

Wisconsin * Milwaukee July 11 13 Sec Dr C A Dawson River Falls.

Wyoming *Examination* Cheyenne June 5 Sec. Dr Franklin D Yoder Capitol Bldg Cheyenne.

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* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Alaska *Examination* Juneau last week in August Sec. Dr C. Earl Albrecht Box 1931 Juneau.

Arizona *Examination* Tucson June 20 Sec. Mr Francis A. Roy Science Hall University of Arizona Tucson

Colorado *Examination* Denver Sept 13 14 Sec Dr Esther B Starks 1459 Ogden St. Denver 3

Connecticut *Examination* New Haven June 10 Exec. Asst. State Board of Healing Arts M G Reynolds 110 Whitney Ave New Haven.

Florida *Examination* Gainesville June 3 Sec Mr M W Emmel, University of Florida Gainesville.

Iowa *Examination* Des Moines July 11 Sec. Dr Ben H Peterson Coe College Cedar Rapids

Michigan *Examination* Ann Arbor Oct 13 14 Sec Miss Eloise LeBeau 101 North Walnut Street Lansing 15

Minnesota *Examination* Minneapolis June 6-7 Sec Dr Raymond N Bieter 105 Millard Hall University of Minnesota Minneapolis

Nebraska *Examination* Omaha Oct. 3-4 Director Mr Oscar F Humble, Room 1009 State Capitol Building Lincoln 9

Oklahoma *Examination* Oklahoma City Sept 15 Sec. Dr Clinton Gallaher 813 Braniff Building Oklahoma City

Oregon Portland June 17 Sec. Dr C. D Byrne, University of Oregon Eugene.

Rhode Island *Examination* Providence August 9 Chief Division of Professional Regulation Mr Thomas B Casey 366 State Office Building Providence.

Texas *Examination* Austin October Sec Brother Raphael Wilson, 306 Nalle Building Austin

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Libel and Slander: Physician Must Be Legally Authorized to Practice.—The plaintiff sued for damages alleged to have been caused by the publication by the defendant of a libelous article. The case was heard in the United States district court, western division, North Carolina.

The plaintiff alleged that the following article appeared concerning him in the May 15, 1948 issue of Collier's magazine:

> In Swain County, North Carolina, mountain people swear by old Dr. Crawford, who can tell you what ails you the moment he pokes his nose through the door—and sniffs. For Dr. Crawford diagnoses entirely by his sense of smell. Each disease, he finds, has its own peculiar odor, and after smelling it out, he has only to sniff at his medicine bottle to mix together just the right dose.
>
> For several years now, North Carolina law has required the licensing of physicians. But Dr. Crawford is one of the old time country doctors who practice under the Grandfather Clause, which permits any physician acknowledged by the local community to practice there for the rest of his life.

The plaintiff, said the district court, put his entire lawsuit in the physician's kit, since it is made to appear that he is wholly relying on the defamation of his professional standing as a physician in the community in which he lives. He alleges no special damage but proceeds entirely and wholly on the defamation being libelous per se. Since such is his manner of choosing, it becomes necessary under the evidence to determine whether the plaintiff, as he alleges, is a duly licensed and registered physician in North Carolina.

The court then discussed the history of the medical practice act with its amendments from the first act in 1858 to 1921. During that period all the versions of the medical practice act contained a "grandfather clause," permitting physicians to practice if they were practicing medicine and surgery in the state prior to March 7, 1885. In 1921 a new chapter was written into the statutory law with respect to the practice of medicine which provided that physicians who have a diploma from a regular medical college and were practicing medicine and surgery in the state prior to March 7, 1885 and who were properly registered as required by law would be permitted to practice in the state. That law also provided that any person desiring to engage in the practice of medicine or surgery should personally appear before the clerk of the superior court of the county in which he resides or practices for registration as a physician or surgeon.

The plaintiff in his evidence testified that he was born in Clay County, N. C., on June 22, 1866 and that in 1883, when he was 17 years of age, he began working with a Dr. Moore, who at that time was practicing medicine in Clay County, and that he continued in such work until Dr. Moore left Clay County and returned to his native state of Louisiana, which the plaintiff believes was in the year 1887. The plaintiff's evidence tends to show from his admissions that he was never licensed in the sense that he took an examination before the examiners of the Medical Society of North Carolina. He further makes an admission that he has never held a diploma from a recognized medical college and that he at no time undertook to register as a physician and surgeon or either or both under certain sections of the statutory law with the clerk of the superior court of any of the counties of North Carolina until Aug. 27, 1929, when he on that day presented himself before the clerks of the superior court of Cherokee county and of Macon county and that subsequently, on Oct. 23, 1930, he made a similar appearance before the clerk of the superior court of Graham County and undertook to do a like thing in registering before him for practicing in that county—these registrations apparently coming about after the plaintiff's conviction in a court of record on Jan. 14, 1929 for practicing medicine without a license in Jackson County, N. C. The plaintiff's purported registration in 1929 was apparently eight years or more after the repeal of the statute, assuming that he otherwise would be entitled to register as having practiced prior to March 7, 1885. The plaintiff, therefore, said the district court, can in no sense qualify as a physician and surgeon, and, therefore, any defamatory article published of and concerning him in his professional standing would obviously fail since he is lacking in that particular qualification.

The statements complained of in this action become libelous, said the court, only when they can be classified as relating to one who is authorized to engage in the practice of medicine at the time of the alleged publication and could not be in law injurious to one who is not a physician or surgeon. A publication which relates solely to the professional conduct of a person engaged in the practice of medicine is not actionable if such person is not legally entitled to practice the profession of medicine. Accordingly the defendant's motion for a directed verdict was granted and the plaintiff's cause of action was dismissed.—*Crawford v. Crowell-Collier Pub. Co., 87 F. Supp. 509 (N. C. 1949).*

Malpractice: Statute of Limitations in Damage Suit Due to Roentgen Burns.—The plaintiff sued the defendant physician for damages alleged to have been caused by the defendant's malpractice. From a judgment in favor of the physician, the plaintiff appealed to the Supreme Court of Oregon.

The plaintiff alleged that the defendant was a licensed physician and surgeon who held himself out as a specialist in x-ray diagnosis and therapy and that she employed him in his capacity as a specialist to treat a uterine tumor with which it was believed she was inflicted. On Jan. 11, 1937, the defendant subjected the plaintiff to roentgen therapy, in the course of which, said the plaintiff, he exposed a portion of her body to roentgen rays in a manner so careless, negligent and unskilful as to burn severely certain of her internal organs. From that time, Jan. 11, 1937, until Aug. 21, 1946, the plaintiff was under the constant care of other physicians and surgeons, who gave her many physical examinations and various kinds of medical treatment. On Aug. 21, 1946, one of them performed an abdominal operation on the plaintiff and then, for the first time, the plaintiff learned "that she never had a uterine tumor and that her said condition was the proximate result of the defendant's negligence, carelessness and unskilfulness aforesaid." The defendant demurred to the complaint on the ground that the action had not been instituted within the time permitted by law.

The action, being based on the alleged negligent performance by the defendant of his contract with the plaintiff, sounds in tort, said the Supreme Court, and the two year statute of limitations is applicable. The general rule in such cases is that the statute of limitations begins to run against the cause of action at the time when the act or omission constituting the alleged malpractice takes place. This rule has been criticized, however, said the Supreme Court. Even with no lack of diligence, it is possible that the patient may not, within two years after the commission of the tort, become aware of the physician's negligence or of the resultant injury. In fact, in some jurisdictions, including Oregon, in cases where the malpractice consisted of negligent acts or omissions extending throughout the whole course of treatment of the patient by the physician, the courts have to some extent mitigated the harshness of the rule of strict application of the statute of limitations by holding that the negligence is in the nature of a continuing tort and that the statute does not begin to run until the termination of the treatment. In the instant case, however, said the Supreme Court, no continuous treatment was involved. The defendant subjected the plaintiff to roentgen ray therapy on one day only, Jan. 11, 1937, and gave her no further treatment or professional advice. Her cause of action, therefore, accrued Jan. 11, 1937. The statute of limitations commenced to run on that day, and the period of limitation expired Jan. 12, 1939. The present action was not commenced until July 2, 1948, or more than nine years after the cause had been barred by the statute.

The counsel for the plaintiff argued that the court should ignore precedent and determine the question presented by the appeal on broad considerations of justice But the constitutional authority of a court of law is limited to the interpretation and enforcement of the law as it is written, said the Supreme Court Moreover, broad considerations of justice require that there should be statutes of repose to prevent the presentation of stale claims and discourage the assertion of fraudulent ones The statute of limitations is a statute of repose, designed to protect the citizens from stale and vexatious claims and to make an end to the possibility of litigation after the lapse of a reasonable period of time. Such protection is especially necessary in cases such as this, said the Supreme Court The physician and surgeon often are handicapped in their defense, because of the mute appeal that is made to the sympathies of jurors by the pitiable conditions of plaintiffs in many malpractice cases For obvious reasons, they should not be further handicapped by having to combat stale claims The statute was passed because of the uncertainty of the results attending the treatment of disease in the first place and the increasing difficulty of tracing such results as time goes on Age, inherited traits, latent diseases and debilitated conditions sometimes render the most skilful treatment unavailing Accordingly the Supreme Court held that the trial court was right in sustaining the defendant's demurrer and the judgment in favor of the physician was accordingly affirmed.—*Wilder v Haworth, 213 P (2d) 797 (Ore, 1950)*

Malpractice Physicians Failure To Use Sterile Instruments—This was an action for damages for personal injuries resulting from the alleged negligence of the defendant physician From a judgment in favor of the physician an appeal was taken to the district court of appeal, second district, division 3, California, which reversed the judgment in favor of the physician (*Moore v Belt*, 203 P (2d) 22, J A.M.A 140 1354 [April 27] 1949) A further appeal was then taken to the Supreme Court of California.

The facts are fully stated in the abstract of the decision of the court of appeal Briefly, however, it appears that the plaintiff submitted to a cystoscopy in the defendant's office and was told that the results of the examination were entirely normal A few days later a rather severe infection of the urinary passages arose. The plaintiff produced an expert witness, whose opinion it was that the infection was introduced into the plaintiff's body by unsterile instruments or by failure to properly cleanse the edges of the urinary channels The defendant's expert witnesses testified concerning standards of treatment and sterilization methods and stated that in their opinion the infection was not caused by any unsterile preparatory procedure nor introduced from outside sources in the conduct of the cystoscopic examination but, based on the prior medical history was attributable to the low grade chronic infection in the genitourinary tract probably prostatic in origin, or to the use of sulfonamide drugs or to influenza from respiratory inflammation or sinus infection Two principal assignments were urged before the Supreme Court, that the court committed prejudicial error in the instructions on the issue of negligence and in rulings on the admission of evidence.

At the defendant's request the trial court charged the jury in substance that the defendant's negligence could not be presumed but must be based on the testimony of experts and that the jury could not set up a standard but must be governed solely by the testimony of expert witnesses The plaintiff requested an instruction embodying the substance of the foregoing instructions and adding that expert testimony was not required to establish a fact based on common knowledge that danger is involved when certain precautionary measures, including sterilization, are not followed, whereupon whether the condition was caused by negligence may be decided in the light of such common knowledge. The requested instruction was refused but at the plaintiff's request the jury was charged that, if it be found that the plaintiff sustained injury as the result of the introduction by the defendant of a new infection, an inference arose that the proximate cause of the injury was some negligence or malpractice on the part of the defendant, which it was incumbent on him to rebut by clear, positive and uncontradicted evidence that the injury occurred without any failure of duty on his part. The plaintiff contended that the instructions given were conflicting and confused the jury, that the correct theory of the case is that as a matter of common knowledge the result does not usually happen when sterilization has been proper and that expert testimony was not required to prove negligence Therefore that the instructions in conflict with his theory were erroneous, misleading and prejudicial On the other hand, the defendant questioned the propriety of any application of a doctrine based on common knowledge in the absence of the fact first established without conflict that the infection was introduced by the act of the defendant. It was therefore contended by the defendant that the record presented issues of fact solely within the knowledge of experts and that the plaintiff's given instruction, which incorporated a statement of the res ipsa loquitur doctrine, was more favorable to him than the record warranted.

The given instruction, said the Supreme Court, embodied a statement of the general rule, that the proper and usual practice in diagnosis and treatment is a question for experts and can be established only by their testimony as well as a statement of the exception known as the res ipsa loquitur doctrine. When the doctrine of res ipsa loquitur has been held applicable, evidence that the defendant did not cause the injury was remote and it followed as a matter of common knowledge from the nature of the injury that the result would not have happened without carlessness or negligence. In the present case, said the Supreme Court, the inference that the injury was caused by some source other than the defendant was not remote but could be drawn from substantial evidence in the record Before compelling inference based on common knowledge, which is at the root of the res ipsa loquitur doctrine, would be justified it became necessary for the plaintiff to eliminate himself as a proximate cause of the injury The evidence on that issue was conflicting and the trial court correctly submitted the case to the jury with statements of both the general rule and the exception It may not be said that the jury was misled to the prejudice of the plaintiff on a record of conflicting evidence containing substantial support of the jury's verdict, and this court, the Supreme Court concluded, is therefore not at liberty to disturb the result of the jury's deliberations

It was also urged that the trial court unduly limited the plaintiff's examintaion of his expert witness It appeared from the testimony of this witness that he had practiced as an autopsy surgeon for 29 years, that he did not practice urology, did not conduct genitourinary examinations in the diagnostic or treatment fields and did not know the method of practice therein but that he had learning and knowledge of the anatomy of and infections in relation to the genitourinary system When this testimony was given and after consultation and offers of proof in chambers, the trial court excluded hypothetical questions addressed to this witness based on his knowledge of existing standards in the practice of urology but permitted one hypothetical question to elicit the witness' opinion as to the cause of the infection. A medical expert, said the Supreme Court, is not qualified as a witness unless he is shown to have the required professional knowledge, learning and skill to express his opinion, and is familiar with the standards required of physicians in similar circumstances In view of the witness's admitted lack of practice in urology, the extent of the examination as to his qualifications in relation to the subject matter of his opinion was within the sound discretion of the trial court No prejudicial error or abuse of discretion is shown

Accordingly the judgment of the trial court in favor of the defendant physician was affirmed.—*Moore v Belt, 212 P (2d) 509 (Calif, 1949)*

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in Continental United States and Canada for a period of five days Three journals may be borrowed at a time Periodicals are available from 1939 to date. Requests for issues of earlier date cannot be filled Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested) Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order Reprints as a rule are the property of authors and can be obtained for permanent possession only from them

Titles marked with an asterisk (*) are abstracted below

American Heart Journal, St Louis

39 160 (Jan) 1950

Cardiac Disease in Pregnancy Study of Patients with Heart Disease at Philadelphia Lying In Division of Pennsylvania Hospital from 1937 to 1947, Inclusive J B Vander Veer and P T Kuo —p 2
Approach to Spatial Electrocardiogram R P Grant —p 17
*Cholesterol Content of Coronary Arteries and Blood in Acute Coronary Artery Thrombosis L M Morrison and K D Johnson —p 31
Factors Influencing T Wave of Electrocardiogram Experimental Study Employing Intracavitary and Extraventricular (Epicardial) Leads I Effects of Heating and Cooling Endocardium and Epicardium H K Hellerstein and I M Liebow —p 35
Plasma Prothrombin Times in Normal Human Subjects Effect of Certain Factors on Prothrombin Time R S Overman, A A Newman and I S Wright —p 56
Effect of Aminophylline on Prothrombin Time of Normal Human Plasma R S Overman and I S Wright —p 65
Effect of Ergotamine Tartrate on Abnormal Electrocardiogram in Patients Previously Prepared with Tetraethylammonium Chloride. M Schlachman and D Scherf —p 69
*Hemorrhage into Arterial Wall as Cause of Peripheral Vascular Disease W B Wartman —p 79
Further Observations on Vagal Influences on Heart During Electroshock Therapy for Mental Disease M D Altschule —p 88
Quantitative Blood Flow Measured Calorimetrically in Human Toe in Normal Subjects and Patients with Residua of Trench Foot and Frostbite M Mendlowitz and H A Abel —p 92
Five-Minute Arterial Occlusion Technique for Determination of Vascular Insufficiency B Kondo T Winsor, P Yamauchi and others —p 99
Method for Percutaneous Introduction of Venous Catheters P Formijne —p 111
Visualization of Coronary Circulation During Angiocardiography A J Gordon, S A Brahms and M L Sussman —p 114
Electrocardiogram Following Anastomosis of Carotid Artery to Coronary Sinus E Leiter —p 125

Cholesterol and Thrombosis of Coronary Artery —*Morrison and Johnson* studied the cholesterol content of the anterior descending branch of the left coronary artery in 11 patients who had died of acute coronary artery thrombosis and in a comparable group of 14 patients who died of causes other than coronary artery thrombosis They also studied the blood serum cholesterol and ester levels in both of these groups and the gross appearance of the aorta and coronary arteries for evidence of atherosclerosis in these patients The average cholesterol content of the coronary arteries in a group of patients who died from an acute coronary artery thrombosis was found to be four times as great as the average cholesterol content of the coronary arteries in a comparable group of control patients Hypercholesteremia was found in most of the patients who died of acute coronary artery thrombosis, as compared to a normal blood cholesterol average in the comparable control group These observations suggest that a disturbance in lipid metabolism is a factor in the pathogenesis of atherosclerosis

Hemorrhage Into Arterial Wall —According to Wartman, bleeding frequently takes place into the intima of a sclerotic artery These hemorrhages were generally regarded as the result of breaks in the intima which permitted infiltration of blood from the main current into the coats of the diseased artery It is now established that in most cases these hemorrhages result from ruptures of the capillaries ramifying within the diseased intima or media and arising from either the lumen of the sclerotic artery or the vasa vasorum In health the vasa vasorum penetrate to the media of large arteries but do not enter the intima In disease and especially in arteriosclerosis, vasa vasorum are present in the thickened intima Not only does intramural hemorrhage occur in the coronary arteries, but it has been observed in most of the large arteries of the body Intramural hematomas occur in the arteries of the lower extremities and may cause occlusion either by pressure alone or by rupture and subsequent thrombus formation The author reports 3 cases in which hemorrhage into the intima or media was a precipitating factor in the obstruction, as determined at autopsy The affected parts of the arteries were removed, washed free of blood, fixed, embedded, sectioned and stained The changes in the iliac and femoral arteries of these adults were identical with those which are known to occur in the coronary, pulmonary, cerebral and renal arteries and in the aorta The discovery of many thin-walled capillaries in the sclerotic arteries in these 3 cases lends additional support to the idea that the hemorrhages result from the rupture of these capillaries, which then bleed into the wall of the vessel It is interesting that in these patients the arterial disease in the vessels of the lower extremities was only a part of a generalized arteriosclerosis which also caused serious manifestations in other organs All had hypertension with vascular disease of the kidneys, 2 showed advanced sclerosis of the aorta with thrombosis, and 1 had both recent and remote occlusions of the coronary arteries with multiple myocardial infarcts This indicates that in some patients vascular disease of the lower extremities may be one manifestation of a generalized disease process

American J Digestive Diseases, Fort Wayne, Ind

17 1-30 (Jan) 1950

Treatment of Ulcerative Colitis with Fractional Component of Hog Stomach Extract R Ehrlich —p 1
Etiology and Pathogenesis of Prolapsed Gastric Mucosa into Duodenum A Melamed —p 4
Physics in Intestinal Intubation M O Cantor —p 10
Angina Pectoris Simulated by Chronic Peripancreatitis and Pancreatitis M W Mettenleiter and F J Lust —p 11
Massive Resection of Small Bowel for Adenocarcinoma of Jejunum R J Kositchek and M H Rabwin —p 13
Adsorption of Bacterial Toxins by Inert Particulate Materials J Moss and G J Martin —p 18
Problems in Intravenous Administration of Synthetic and Natural Fats for Nutritional Purposes H H LeVeen, G Papps and M Restuccia —p 20

American Journal of Hygiene, Baltimore

51 1-134 (Jan) 1950 Partial Index

Status and Significance of Inapparent Infection with Virus of Japanese B Encephalitis in Japan in 1946 M B Bawell, R E Jeuel Jr, M Matumoto and A B Sabin —p 1
Search for Virus of Japanese B Encephalitis in Various Arthropods Collected in Japan in 1946 1947 A B Sabin —p 36
Study of Canine Encephalitis H Koprowski, G A Jervis, T R James and others —p 63
Immunologic Groups of Poliomyelitis Viruses J F Kessel and C F Pait —p 76
Subclinical Poliomyelitis in Chimpanzee and Its Relation to Alimentary Reinfection H A Howe, D Bodian and I M Morgan —p 85
*Epidemiologic Characteristics of Poliomyelitis in Iceland J Sigurjonsson —p 109
Virus and Host Factors Influencing Titer of Lansing Poliomyelitis Virus in Monkeys Cotton Rats and Mice D Bodian, I M Morgan and C E Schwerdt —p 126

Poliomyelitis in Iceland —Analysis of the epidemiologic features of poliomyelitis in Iceland, as manifested since the disease was first recognized in 1904, provides, according to Sigurjonsson, an illustration of the behavior of this disease as influenced by the conditions of living, climate, ecology and environment peculiar to this far northern country The causative virus has been able to maintain itself over considerable periods of time in this relatively isolated island population of 80,000 to 130,000, one third of which is concentrated in a single urban area and the rest scattered over a huge territory in small communities and on farms with limited intercommunication Moreover, the virus has become prevalent in this population during a period when transport, communication, living conditions, home hygiene and community sanitation were being steadily improved Poliomyelitis has appeared in epidemics at intervals of about ten years As measured by morbidity and mortality rates, these epidemics have been severe in comparison with those in countries of Northern Europe and North America During the interepidemic periods the disease has either completely disappeared or existed at a low and probably largely subclinical level Cases of poliomyelitis have occurred in every month of the year but usually reach maximum numbers in the autumn The most recent epidemic reached its peak in the winter The age distribution has shown an interesting shift In the earlier epidemics the highest attack rate was in children under 5 years of age In recent years there has been a distinct shift in the distribution of cases toward older ages In the latest epidemic the highest attack rate was reached in the 15 to 19 year age group, and a considerable proportion of cases was in adults This shift in age distribution is more pronounced than that observed in some parts of Europe and North America The author suggests as an alternative hypothesis the possibility that the shift in age distribution is due in part to coincident prevalence of an unidentified disease which closely resembles poliomyelitis This might account also for the unusual (midwinter) seasonal distribution and for the extremely high morbidity rates

American J Obstetrics and Gynecology, St. Louis

59 1-236 (Jan) 1950 Partial Index

Anatomy and Histology of Sacrouterine Ligaments R. M Campbell —p 1
Premature Separation of *Normally Implanted Placenta* Clinicopathological Study of 276 Cases L. I Sexton A. T Hertig D E Reid and others —p 13
Electrical Activity of Human Uterus in Labor Electrohysterograph C M Steer and G J Hertsch —p 25
Intravenous Pituitary Extract in Labor with Data on Patterns of Uterine Contractility L M Hellman J S Harris and S R. M Reynolds —p 41
Intravenous Use of Dilute Pituitrin for Induction and Stimulation of Labor Preliminary Report M L. Stone —p 49
Primary Carcinoma of Fallopian Tube C Y Hu M L. Taymor and A T Hertig —p 58
Habitual Abortion Incompetent Internal Os of Cervix A. F Lach and S R. Lash —p 68
Recent Trends in Cesarean Section. R G Douglas and R Landesman —p 96
Rupture of Pregnant Uterus J F Brierton —p 113
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Radical Hysterectomy in Carcinoma of the Cervix — After the advent of irradiation therapy for carcinoma of the cervix the therapeutic pendulum swung to nonoperative treatment and remained there until recent years because (1) many patients were inoperable (2) the primary operative mortality was high, and (3) irradiation therapy had a lower primary mortality rate, universal application and a satisfactory recovery rate The Wertheim operation or radical hysterectomy was long regarded as obsolete but during the past ten years there has been an increasing interest in surgical treatment Twenty-five patients about a fourth of those admitted to the Department of Obstetrics and Gynecology of the Bowman Gray Medical School between the years 1944 and 1948, were subjected to the Wertheim operation Nearly all the patients received preoperative irradiation consisting of 8,120 r of high voltage roentgen therapy and 4,000 to 6,000 mg hours of radium With the exception of a few patients with preinvasive and very early invasive carcinoma a complete radical hysterectomy was done There was a large number of postoperative complications, 16 of which were due to urinary tract infection The majority of the latter were relatively harmless, several were severe and suggested primary injury of the urinary tract. In addition, there were 3 cases of pelvic cellulitis, 1 of peritonitis 1 of evisceration 1 pelvic abscess 1 pulmonary embolism 1 ureteral obstruction 1 hydronephrosis 2 rectovaginal fistulas, 1 vesicovaginal fistula and 1 death Some of these complications were overlapping Twenty two patients were followed in no case was active cancer noted The longest follow-up period was three years Whether the Wertheim operation will improve the present recovery rate remains to be proved

American Journal of Ophthalmology, Chicago

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Am. J Roentgenol & Rad Therapy, Springfield, Ill

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Roentgenographic Detection of Coronary Arteriosclerosis —Habbe and Wright evolved a technic of routinely searching for coronary arteriosclerosis in all patients over 40 years of age who were referred for cardiac roentgen study The method has permitted detection of coronary arteriosclerosis with a frequency somewhat greater than that of sclerosis of the heart valves In two and one-half years, during which every patient over the age of 40 with cardiac disease received the benefit of multiple spot-aimed roentgenograms and kymograms, an incidence of approximately 3 per cent of coronary arteriosclerosis was demonstrated, and approximately 1 5 per cent had sclerotic valves or annuli With the described roentgenographic technic the authors found nearly twice as many cases of coronary arteriosclerosis as might be found by routine searching with roentgenoscopy only These pathologic processes of lesser degree, found mostly in the 50 to 60 year age group, are probably more important clinically than the advanced degrees of sclerosis seen in the 70 to 80 year age group

Bone Involvement in Cryptococcosis (Torulosis) — According to Collins cryptococcosis is widely known as torulosis The causative organism, Cryptococcus neoformans, is also termed Cryptococcus hominis or Torula histolytica The organism belongs to the group of fungi imperfecti It appears as encapsulated, rounded budding cells, usually 5 to 8 microns in diameter, producing no myceliums or spores The organisms have frequently been mistaken for lymphocytes or red blood cells Lesions due to C neoformans produce a gelatinous or mucoid exudate, which has often given the impression of a myxomatous tumor The author believes that a closer investigation of atypical cases of Hodgkin's disease will also disclose further instances of cryptococcosis The disease is best known when it takes the form of meningoencephalitis, but the author discovered 17 cases of bone involvement in over 200 cases reported in the literature Three additional cases with bone involvement are reported in which roentgen observations were made over periods up to fifteen months The osseous lesions were widely disseminated and discrete The lesions were chronic, but regression is apparently possible with the reformation of bone of normal structure The slow rate of change in these disseminated areas of bone destruction seems to be significant in the recognition of the disease The bone lesions in the 3 described cases of cryptococcosis fall within the range of variation described as common to blastomycosis and coccidioidomycosis These three mycoses differ from actinomycosis in both the distribution and character of the osseous lesions In the former the lesions are disseminated and discrete, whereas in actinomycosis the infection tends to extend by direct continuity, riddling the regional bone

Am Practitioner & Digest of Treatment, Philadelphia

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Clinical Investigation of Digitoxins G Schwartz —p 61
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Bed Pan Deaths —McGuire and his associates investigated the autopsy protocols and clinical records of patients in the Cincinnati General Hospital who died on bed pans during the period 1936 to 1946, inclusive A review of 6,700 autopsy protocols revealed that 11 patients died suddenly while using the bed pan The true incidence of bed pan deaths in the Cincinnati General Hospital was unquestionably far higher than this figure indicated since only cases coming to autopsy were included The authors investigated the influence on the circulation of deliberately increased intra-abdominal and intrathoracic pressures in normal subjects and in patients with heart disease by requesting the subject concerned to take a deep breath, hold it and strain as if he were endeavoring to have a bowel movement Electrocardiograms before, during and after strain have been recorded and measurements made of intravascular pressures with strain gages Intrapleural pressures were measured in patients with pneumothorax by water manometers Sharp rises in intra-arterial and intravenous blood pressures occurred during strain on bed pans, with pronounced changes in rate and rhythm of the heart The majority of persons dying on bed pans had serious organic heart disease It seems probable that cardiac arrhythmias, vascular hemorrhage and pulmonary embolism are the mechanisms responsible for death of subjects while straining at stool The use of atropine, the avoidance of constipation to eliminate the necessity of severe straining at the stool and early ambulation of surgical patients to reduce the incidence of venous thrombosis may be means of reducing such deaths

Annals of Allergy, Minneapolis

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Annals of Internal Medicine, Lancaster, Pa

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Response of Acute Leukemia to Folic Acid Antagonists —Sacks and co-workers report on 14 patients with leukemia, 6 females and 8 males, 5 children between the ages of 11 months and 8 years, 3 adolescents between the ages of 15 and 17 and 6 adults between the ages of 26 and 63 Four patients had acute myeloid leukemia, 7 had leukemia of the acute lymphoid variety and 3 had acute monocytic leukemia The therapeutic regimen employed from April 1948 to June 1949 consisted in the liberal use of whole blood transfusions, various antibiotics and the folic acid antagonists, aminopterin (4-aminopteroylglutamic acid) and a-methopterin (4-amino, 10-N-methylpteroylglutamic acid) Aminopterin was given in doses of 0 5 to 2 mg per day intramuscularly and a-methopterin in doses of 2 to 4 mg daily Two patients with acute myeloid leukemia, a woman aged 39 and a child aged 14 months, responded to the treatment with a complete, temporary, clinical and hematologic remission The duration of the remission in the adult patient was eighty-one days, after which relapse and death occurred, the child had a complete remission lasting about thirty days Partial temporary remissions were observed in 3 patients, all of whom subsequently died The course of the disease in the remaining 9 patients was considered to have been uninfluenced by the therapy Maintenance therapy is considered advisable in patients with partial or complete temporary remissions Some of the patients were able to take relatively large doses before the occurrence of toxic effects, but others showed early signs of toxicity, such as ulcerative stomatitis, diarrhea, bone marrow aplasia and alopecia Terminal icterus was noted in several patients, but because of the use of massive whole blood transfusions the possibility of a virus etiologic basis rather than drug toxicity could not be entirely disregarded The narrow margin between therapeutic efficacy and toxicity renders widespread and uncontrolled use of the folic acid antagonists somewhat hazardous, but the occurrence of undisputed remissions to an extent hitherto unheard of in acute leukemia offers sufficient incentive for continued therapeutic trials

Archives of Dermatology and Syphilology, Chicago

61 175-360 (Feb) 1950

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Aureomycin, Oral Therapy in Syphilis —Kierland and his associates at the Mayo Clinic administered aureomycin orally to patients with early infectious syphilis and to patients with late cutaneous syphilis and neurosyphilis Two patients with dark-field positive primary lesions of syphilis were given aureomycin orally The lesions became dark field negative rapidly and healed, and the serologic reactions became negative. There was no clinical or serologic evidence of relapse to the time of the present report Two patients with long-standing, previously unrecognized, late noduloulcerative, cutaneous syphilis were given aureomycin orally The cutaneous lesions quickly disappeared, and healing progressed rapidly The serologic patterns showed no change during the short period of observation Two patients with neurosyphilis showed improvement When aureomycin was given in doses of 250 mg every four hours or 500 mg every six hours, levels between 2 and 4 micrograms per cubic centimeter of blood serum were obtained, when the drug was given in doses of 750 mg every four hours, or 1 Gm every six hours, levels of 4 to 8 micrograms per cubic centimeter of serum were frequently observed Therapeutically effective concentrations of aureomycin in the blood serum may be expected when the antibiotic is given but two or three times daily Aureomycin is widely distributed through the tissues, readily traverses the blood brain barrier and is present in the cerebrospinal fluid after oral administration of amounts commonly used for most infections. The total dose of aureomycin given in the 7 cases varied from 44 2 to 90 5 Gm The authors conclude that aureomycin exhibits definite antisyphilitic activity Aureomycin should be of value in the treatment of a patient with syphilis who has become resistant or who is sensitive to penicillin.

Archives of Pathology, Chicago

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Arizona Medicine, Phoenix

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Blood, New York

5 1-106 (Jan) 1950

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Hemophilia Like Disease with Prolonged Coagulation Time and Circulating Anticoagulant Report of Case in Female O H Dreskin and N Rosenthal —p 46
*Dangerous Universal Donors I Observations on Destruction of Recipient s A Cells After Transfusion of Group 0 Blood Containing High Titer of A Antibodies of Immune Type not Easily Neutralizable by Soluble A Substance D M Ervin and L E Young —p 61
*Phase Microscopy Studies of Hodgkin's Disease Lymph Nodes in Relation to Histogenesis of Sternberg Reed Cell G T Hoffmann and A Rottino —p 74
Localization of Lipids in Human Blood and Bone Marrow Cells M L. Bloom and G B Wislocki —p 79
Observations on Hematologic Values of Japanese F M Snell —p 89

Dangerous Universal Donors —Erwin and Young report a severe hemolytic reaction occurring in a group A (A intermediate subgroup) recipient after transfusion of group O blood from a donor whose serum contained A antibodies in high titer Hemoglobinemia persisted for at least thirty hours, during which period the patient became severely anemic. *Azotemia, hyperbilirubinemia, spherocytosis and increased* osmotic and mechanical fragilities of the patient's erythrocytes were observed for nine days The recipient was rendered temporarily incompatible with prospective A_1 donors as a result of incomplete absorption of the anti-A agglutinins in the transfused group O blood. The A antibodies in the serum of the dangerous universal donor were shown to have the following peculiarities (*a*) When normal AB serum was used as a diluent for the group O serum and as a medium for cell suspensions the titer against A_1 cells was higher than that obtained with isotonic sodium chloride solution as a diluent and suspension medium (*b*) After "neutralization' with soluble A and B factors, the group O serum agglutinated neither A nor B cells in "saline systems," but in 'serum systems" the treated O serum still agglutinated A_1 cells in very high titer and A intermediate cells in low titer (*c*) A_1 cells, but not A intermediate or A_2 cells, gave positive reactions with anti human globulin rabbit serum (indirect Coombs test) after exposure to the neutralized O serum (*d*) The group O serum hemolyzed and fixed complement with all types of A cells but not B cells These peculiarities suggested that the group O donor had developed A antibodies of immune type and predominantly of A_1 specificity, but the stimulus for production of these antibodies could not be ascertained It is emphasized that the type of antibody, natural or immune, as well as the titer, must be taken into account in any attempt to assess the changes inherent in the use of universal donors and that 'conditioning" of group O blood by addition of soluble A and B factors in conventional quantities may not effectively neutralize immune A_1 and B antibodies if such be present Further observations are needed to show whether or not neutralization of "saline" agglutinins and hemolysins by A and B factors may render dangerous bloods relatively safe despite the persistence of incomplete antibodies

Hodgkin's Disease, Lymph Nodes —Hoffmann and Rottino studied lymph nodes from 20 patients with Hodgkin's disease with the Spencer phase microscope. Observations indicated that the free reticulum cell in this disease undergoes progressive cytologic alteration leading to the formation of Sternberg-Reed cells The other free cellular components of the lymph nodes were observed to be cytologically normal From the point of view of pathologic cytology the authors feel that Hodgkin's disease is essentially a reticulum cell aberration, with the variation in lymphocyte pattern representing a reaction phenomenon

Canadian Medical Association Journal, Montreal

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*Preliminary Report on *Adrenocorticotrophic* Hormone (ACTH) *in* Asthma B Rose, J A P Pare K Pump and R L Stanford —p 6
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Male Frog, Rana Pipiens, as Biological Test Animal for Diagnosis of Pregnancy D M Bell, J W Macgregor and J R Vant —p 68
*Homologous Serum Jaundice Transmitted by Tattooing Needle R. H *Roberts and* H *Still —p 75*

Pituitary Adrenocorticotropic Hormone (ACTH) in Asthma —Rose and co-workers treated 6 patients with severe asthma of three to eight years' duration with adrenocorticotropic hormone (ACTH) One of the patients in addition to asthma had pronounced rheumatoid arthritis, and another had periarteritis nodosa The patients were hospitalized and placed on a diet of known caloric and electrolytic values Nitrogen balance, urinary excretion of sodium, chloride, potassium, 17-ketosteroids, glycocorticoids, histamine and histidine were studied On the last three days of a nine day control period, intramuscular injections of sterile water at intervals of six hours were administered Treatment with adrenocorticotropic hormone was started on the tenth day with intramuscular injections in divided doses at six hour intervals The first 2 patients received 150 mg daily for two days and then 100 mg for two more days, a total dose of 500 mg The next 4 patients received 100 mg daily for three days, 75 mg daily for two days and 25 mg on the sixth day of treatment, making a total dose of 475 mg After the period of treatment, the patients were kept in a hospital for an additional three to five days, after which they were discharged and followed at regular intervals There was a complete remission of all signs and symptoms in 4 patients within forty-eight hours after the initiation of the hormonal treatment Complete remission was not achieved in the remaining 2 patients, although there was little doubt of improvement With the need for epinephrine or other therapy removed, the pulse rate slowed down to normal and the patients experienced a sense of well-being and return of appetite Respiratory function as evaluated by vital capacity and maximum breathing capacity was decidedly improved In addition the ability of histamine or methacholine chloride to depress respiratory function during the control period was prevented in 4 patients after pituitary adrenocorticotropic hormone therapy It is still too early to state how long a complete remission may be expected to last, but 1 patient remained completely clear of symptoms for one month The signs and symptoms of rheumatoid arthritis and periarteritis nodosa were greatly improved in the 2 patients in whom these diseases were associated with asthma

Cancer of Lip —Burkell reports on 534 patients, 527 men and 7 women, between the ages of 22 and 86, with cancer of the lip Four hundred and seventy-six patients were outdoor workers and 440 of them were farmers Only 6 (1 1 per cent) had a positive reaction of the blood to the Wassermann test The lower lip was the site of the lesion in 520 patients (97 per cent) Three hundred and forty-three patients had no history of preexisting lesions, 131 had such a history and 15 had significantly enlarged lymph nodes when originally seen Epidermoid carcinoma was the histologic diagnosis in 529 patients 481 were in stage 1 (less than 3 cm in size), 35 in stage 2 (over 3 cm), 15 in stage 3 with significant involvement of lymph nodes and 3 in stage 4 The 18 patients with malignant lymph nodes (stages 3 and 4) had delayed seeking medical attention for twenty-three months as compared to 4 8 months for the patient without lymph node involvement In 16 patients malignant lymph nodes developed after successful treatment of the primary lesion Recurrences were observed in 28 patients (5 2 per cent) six months to ten years after treatment of the original lesion Forty-two of the 534 patients died of other causes, and 16 were lost to follow-up Twenty-nine died as a result of cancer and 21 had a recurrence within five years, a total of 50 therapeutic failures After five years or more 426 patients were free from disease, the over-all five year net survival was 89 5 per cent The majority of patients were treated by either roentgen irradiation or radium implants Cancer of the lip can be cured by radiotherapy in a high percentage of cases provided that treatment is instituted early The choice of a particular radiotherapeutic technic is not important provided painstaking care is used in the planning and execution of the technic This is necessary to minimize the recurrence rate and to insure good cosmetic results Radiotherapy is not the treatment of choice for metastatically involved lymph nodes Greater success may be obtained by a radical block dissection

Serum Jaundice Transmitted by Tattooing Needle —Roberts and Still report 4 cases of homologous serum jaundice transmitted by a tattooing needle to 3 aviation mechanics and 1 seaman None of them had contact with clinical jaundice and none had an inoculation or venipuncture more recently than eight months before the onset of symptoms The 4 patients were all tattooed on the same day and in the same establishment several months before illness It is improbable that a small outbreak of infective hepatitis would be limited to such a group of persons The incubation periods of 126, 132, 139 and 144 days were consistent with a diagnosis of homologous serum jaundice It must be assumed that the tattooing needle was contaminated with the blood or serum of a customer who was either incubating serum hepatitis or suffering from a mild attack of that disease Available evidence shows that only a minute quantity of serum is necessary to transmit the disease If one assumes that the needle was involved, one must infer that the same needle was used on the infected customer and then on all 4 of the authors' patients in turn, a small amount of the infective material being inoculated into each Since only a minute inoculum is necessary, there is nothing inherently improbable in the mode of transmission suggested by the authors A plea is made for closer supervision of tattooing shops

Cancer Research, Chicago

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Studies on Relationship Between Sarcoma and Leukosis in Chickens II Histogenesis of Tumors Induced by Intramuscular Inoculation of Cell Containing Leukotic Material M Pikovski and L Doljanski —p 1
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Studies on Intracellular Composition of Livers from Rats Fed Various Aminoazo Dyes J M Price E C Miller, J A Miller and G M Weber —p 18
Intra Ocular Transplantation of *Heterologous* Tissues *D S Morris* J R McDonald and F C Mann —p 36
*Tobacco Smoking as Etiologic Factor in Disease I Cancer R Schrek, L A Baker G P Ballard and S Dolgoff —p 49
Use of X Rays to Determine Mitotic and Intermitotic Time of Various Mouse Tissues N P Knowlton Jr and W R Widner —p 59

Tobacco Smoking *and Cancer* —*The smoking* habits of 82 men with cancer of the lung and 73 men with cancer of the larynx and pharynx were compared by Schrek and his co-workers with the smoking habits of a control group of 522 patients with miscellaneous tumors A relatively high percentage of cigaret smokers was found among the patients with cancer of the respiratory tract, as compared with the control group This positive correlation between the incidence of cigaret smoking and the incidence of cancer of the respiratory tract appeared to be both statistically and biologically significant

Diseases of Chest, Chicago

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*Cytologic Diagnosis of Bronchogenic Carcinoma L B Woolner and J R McDonald —p 1
*Bed Rest Collapse and Streptomycin in Treatment of Pulmonary Tuberculosis I Clinical and Roentgenologic Observations (Preliminary Report) B W Armstrong J P Colmore and J E Drorbaugh —p 11
*Clinical Analysis and Follow Up Study of 502 Cases of Carcinoma of Lung W F Rienhoff Jr —p 33
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Pulmonary Edema Experimental Observations on Dogs Following Acute Peripheral Blood Loss R. M Eaton —p 95
Pulmonary Abscess as Complication of Hiatal Hernia E L Coodley —p 102

Bronchogenic Carcinoma —Woolner and McDonald performed cytologic examination of sputum and bronchial secretions from approximately 6 000 patients A cytologic diagnosis of carcinoma was made in more than 400 cases The diagnosis was based on cytologic examination of sputum in approximately four fifths of the total number and on the examination of bronchial secretions, washings or smears made by direct swabbing of the bronchial wall in the remaining cases False positive diagnoses were made in 2 per cent of the cases The false negative error was about 30 per cent. Of the 400 patients, 144 underwent surgical exploration. Of the 144, 79 (54 9 per cent) had a preoperative microscopic diagnosis of carcinoma on the basis of positive results obtained on bronchoscopic biopsy Positive smears provided the only preoperative microscopic evidence of malignant growth in the remainder Pneumonectomy or lobectomy was performed on 77 patients, 45 of the operations being on the basis of positive biopsies and 32 on the basis of positive smears The lesions were peripherally placed, showing slight or no communication between the tumor and the bronchial tree, in 8 of the 80 cases of surgically removed bronchogenic carcinoma. Cytologic examination of these peripherally located tumors gave negative results Cytologic studies are of value in the diagnosis of alveolar cell tumor but not of bronchial adenoma or cylindroma

Treatment of Pulmonary Tuberculosis —Armstrong and co workers treated 76 men aged 17 to 50 with pulmonary tuberculosis by bed rest and collapse therapy integrated with administration of streptomycin by the intramuscular route. The majority of the patients (63) received 1 Gm of streptomycin daily for six weeks following an observation period of six weeks or more, during which the disease progressed failed to improve, or improved less than was desired or expected There were 6 patients with tuberculous lobular pneumonia without cavitation, 42 patients with advanced tuberculous lobular pneumonia and cavitation 19 with confluent tuberculous lobular pneumonia, 5 with fibrocaseous and fibrocavernous subacute pulmonary tuberculosis and 4 with miscellaneous types The results obtained were evaluated by a group of specialists (one phthisiologist, one pathologist and one thoracic surgeon), who observed that after treatment with streptomycin 54 patients (71 per cent) showed roentgenologic improvement, 63 (83 per cent) definite over all clinical improvement and 45 (59 per cent) roentgenologic and over all clinical improvement greater than could be expected without streptomycin The disease was apparently arrested in 2 patients, quiescent in 13 and still active in 57 Forty patients were prepared for definite collapse therapy Four patients died, 1 death occurred after pneumonectomy, 1 after tuberculous meningitis and 2 from steadily progressive pulmonary tuberculosis The striking effect of streptomycin therapy was the rapid clearing of soft exudative spreads The highly favorable response of confluent lobular pneumonia resulted from both the clearing of the perifocal reaction and the stimulation of the production of collagen by the invading productive elements Acinose nodose foci showed a less dramatic decrease in size than the softer areas of caseous lobular pneumonia but showed more rapid healing after streptomycin therapy than was expected otherwise It does not seem advisable to use streptomycin to prevent intracanalicular spreads

Carcinoma of the Lung —Rienhoff reports on 502 patients with carcinoma of the lung There was a much higher incidence in men than in women, a ratio of almost 6 to 1 in favor of the men The majority of the patients were in the fourth to sixth decade. Cough was the chief symptom in 71 per cent of the patients, hemoptysis in 63 per cent, and pain in 50 per cent, with a striking loss of weight in 39 per cent Hyperpnea occurred in 23 per cent, pneumonitis in 18 per cent and fever in 13 per cent Chest roentgenograms were positive in all 502 patients Bronchoscopy was next in importance as an aid to definite diagnosis Bronchography is a useful diagnostic method only to reveal occlusion of a bronchus by a small growth which does not produce a shadow in the roentgenogram Transthoracic aspiration biopsy has a limited field and is often difficult to interpret Exploratory thoracotomy should be resorted to far more frequently than it was in the past Three hundred and forty-four patients were inoperable at the time of exploration Total pneumonectomy was performed on 158 patients Forty-one of the 158 patients died within less than one month, a total operative mortality of 26 per cent Sixty-three of the patients who are now dead survived the operation for one month to six years, and 54 who are still alive survived from one month to sixteen years Primary carcinoma of the lung can be satisfactorily treated by total pneumonectomy Surgical measures short of pneumonectomy are not efficacious

Florida Medical Association Journal, Jacksonville

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The Circus J Halton —p 411
Comments on Diverticula of Gastrointestinal Tract G Raap —p 415
Toxic Effects of Tetraethylpyrophosphate Report of Case G M Johnson —p 417
Clinical Application of Electrocardiography F A Reed —p 420
Reliability of Serologic Examinations as Performed in Medical Laboratories in Florida. A V Hardy —p 427

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Pyuria Study of 100 Cases F J Pyle —p 475
Urologic Consideration of Urinary Incontinence in Female Analysis of 112 Cases A J Butt and W E Kittredge —p 479
Multifocal Malignant Neoplasia Case Report of Unusual Combination of Unrelated Cancers L. Y Dyrenforth and A T Kennedy —p 484
Complications of Anorectal Surgery T E Smith.—p 488

Indiana State Medical Assn Journal, Indianapolis

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Surgery of Large Arteries L G Herrmann —p 21
Thrombotic Obliteration of Aortic Bifurcation F W Taylor and L. R Nonte —p 29
Tumor of Pineal Body with High Insulin Resistance E N Mendenhall —p 32

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Industrial Medicine and Surgery, Chicago

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*Inguinal Hernia Delayed vs Early Ambulation O J Preston —p 6
Occupational Adjustment of World War II Veteran at Atomic Energy Research Laboratory J S Felton and M D Owen —p 13
Appraisal of Industrial Hygiene B E Kuechle —p 28
Accidents—The Cancer of Industry R A Sutter —p 31
Dermatitis in Making of Chocolate Candy M H Samitz —p 35

Inguinal Hernia Delayed Versus Early Ambulation —Preston analyzed 200 consecutive cases of inguinal hernia, two identical groups of 100 cases each The first group was handled according to the routine of complete postoperative bedrest for not less than thirteen days The second group was ambulatory early They were not allowed to remain in their beds for more than twenty-four hours postoperatively At first the initial adventure out of bed was generally limited to standing, with walking permitted only on the second postoperative day During the past few years the patients were permitted to walk about on their first excursion out of bed and many walked to and used the hospital bathroom facilities In each of the groups there were 80 with unilateral and 20 with bilateral hernia Of the 200 patients, 179 had primary or previously unoperated on hernias and 21 had had surgical repair Of the 179 primary cases 89 were in the group in which rising after operation was delayed and 90 in the group with early ambulation The recurrence rate was practically identical in these two groups, 5 in each Of those who had been operated on previously, 11 belonged to the delayed and 10 to the early rising group, there were 3 recurrences among the 11 and none among the 10 early rising patients Simple postoperative complications amounted to 15 in the early rising and to 73 in the delayed group The patients of the early rising group were discharged from the hospital six days sooner than the delayed group and returned to work two weeks earlier

Journal of Allergy, St Louis

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Experimental Approach to Psychosomatic Phenomena in Rhinitis and Asthma S Wolf, T H Holmes, T Treuting and others —p 1
*Studies on Effect of Administration of Pituitary Adrenocorticotrophic Hormone (ACTH) to Case of Loefller s Syndrome and Case of Tropical Eosinophilia. P Herbert J A de Vries and B Rose —p 12
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Kaposi s Varicelliform Eruption Report of Case Treated with Aureomycin and Observations Regarding Course of Underlying Skin Disease R Bookman —p 68
Laboratory and Clinical Comparison of "Antihistaminic" Effect of Hydryllin and Four Experimental Compounds D J Perry and P LeVan —p 73

Pituitary Adrenocorticotropic Hormone (ACTH) in Loeffler's Syndrome and in Tropical Eosinophilia—Herbert and his co-workers describe the effects of pituitary adrenocorticotropic hormone (ACTH) in 2 patients with severe eosinophilia They administered the hormone to a patient with Loeffler's syndrome and to a patient with tropical eosinophilia The ACTH was given intramuscularly in divided doses Totals of 140 mg and 120 mg were administered A transient increase in total circulating leukocytes occurred in both subjects There followed a decrease to virtual disappearance of circulating eosinophils in the patient with Loeffler's syndrome In the case of tropical eosinophilia, however, although a decrease in total eosinophils occurred, the percentage decrease was much less and did not persist It is not clear why there should have been such a great alteration in the eosinophils in Loeffler's syndrome and not in tropical eosinophilia Although urinary corticoids or 17-ketosteroids were not determined, it is unlikely from clinical observations that the adrenal glands were abnormal in the patient with tropical eosinophilia The difference in the response of the eosinophil count to ACTH in these two disorders might serve to differentiate them There were many previous observations on the reciprocal relation between neutrophils and eosinophils Leukocytosis is often accompanied with a reduction in the circulating eosinophils Current thought on this phenomenon leads one to believe that this mechanism may be mediated through the pituitary adrenal mechanism The blood histamine studies corroborate that the eosinophil in man is not responsible for carrying histamine The common association of asthma in conjunction with Loeffler's syndrome and the presence of pulmonary as well as blood eosinophilia in asthmatic patients suggest that this cell must be intimately connected with the allergic state Since ACTH or compound E affords a means of influencing this cell, it is possible that further studies with these compounds may help to clarify the mechanism of allergy and its relation to the pituitary adrenal axis

Journal of Bone and Joint Surgery, Boston

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Stabilizing Operations on Foot Study of Indications, Techniques Used and End Results R. L Patterson Jr, F F Parrish and E N Hathaway —p 1
Progressive Muscular Atrophy of Peroneal Type (Charcot Marie-Tooth Disease) Orthopaedic Management and End Result Study J E. Jacobs and C R. Carr —p 27
Fractures of Lateral Tibial Condyle C H Bradford, R M Kilfoyle J J Kelleher and H K Magill —p 39
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*Prognosis in Poliomyelitis R E Lenhard —p 71
Surgical Division of Patellar Retinacula to Improve Extension of Knee Joint in Cerebral Spastic Paralysis G W N Eggers —p 80
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Intervertebral Disc Lesions in Children and Adolescents J A Key —p 97
Streptomycin in Tuberculous Bone and Joint Lesions with Mixed Infection and Sinuses D M Bosworth A D Pietra and R. F Farrell —p 103
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Method of Mobilizing Temporomendibular Joint H Kelikian —p 113
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Osteomalacia M S Sherman —p 193
Transplantation of External Oblique Muscle for Abductor Paralysis L I Thomas, T C Thompson and L R Straub —p 207
Primary Tenorrhaphy of Flexor Tendons in Hand V E Siler —p 218

Prognosis in Poliomyelitis—Lenhard presents a survey of the 1944 poliomyelitis epidemic in Maryland, which was the largest recorded in that state, with 499 cases (24 9 per 100,000 population) There were 16 deaths (3 2 per cent) The survey is a two year follow-up study and, although it represents the probable limit of improvement of muscles, it does not relate the end of the story of deformities Wherever there is imbalanced power in antagonistic muscle groups, deformities can occur later It was possible to compare 150 cases treated by nonsupportive methods with 150 cases treated by supportive methods In the former series there were 35 deformities in 22 cases, in the latter, 19 deformities in 15 cases Thus fewer deformities occurred in the cases treated by supportive therapy and physical therapy The results of the 1941 and the 1944 epidemics were similar, except that slightly more patients had residual involvement in 1944 Approximately 80 per cent of the patients obtained a good recovery Treatment should be carefully supervised and guided by muscle examinations Supportive treatment is important Delay in recovery and persistence of weakness have been observed in patients allowed to fatigue muscles by overtreatment, too much activity or lack of necessary support Treatment given without regard to the protection of muscles results in more deformities

Journal of Neurosurgery, Springfield, Ill

7 1-96 (Jan) 1950

*Intradural Spinal Granulomas P C Bucy and H R. Oberhill —p 1
Surgical Treatment of Aneurysm of Anterior Cerebral and Anterior Communicating Arteries Diagnosed by Angiography and Electroencephalography A R Elvidge and W H Feindel —p 13
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*Meningioma of Optic Foramen as Cause of Slowly Progressive Blindness Report of 3 Cases W McK Craig and L J Gogela —p 44
Four Congenital Tumors Found at Operation Within Vertebral Canal with Observations on Their Incidence. S P W Black and W J German —p 49
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Experience with Topectomy for Relief of Intractable Pain J Le Beau —p 79

Intradural Spinal Granulomas—According to Bucy and Oberhill intradural granulomas are rare They may be of syphilitic origin in the form of a gumma, or tuberculomas, or they may be of other causes The authors report a case of intradural spinal granuloma The patient had a gradually progressive paraparesis with complete obstruction to the flow of cerebrospinal fluid and greatly increased cerebrospinal fluid total proteins Laminectomy revealed a granuloma compressing the thoracic spinal cord This was partially removed It was apparently tuberculous in origin, although no other foci of tuberculous infection were demonstrated. Its partial removal was followed by a complete recovery from all the symptoms of involvement or compression of the spinal cord After three years there was no evidence of extension of the lesion or of the infection. Tuberculous meningitis did not develop Since the differential diagnosis between granuloma and neoplasm is virtually clinically impossible, the first step should always be a laminectomy and decompression of the lesion and spinal cord Later, antisyphilitic or other specific or supportive therapy may be administered Although the prognosis cannot be regarded as good, the case of intradural granuloma of the spinal cord reported here is evidence that adequate decompression of the cord by laminectomy and partial removal of the granuloma may, on occasion, permit the body to overcome the infection with subsequent clinical recovery

Meningioma of Optic Foramen Causing Blindness — Craig and Gogela report 17 cases of primary intraorbital meningioma removed surgically and verified pathologically at the Mayo Clinic Included in this group were tumors that arise from the meninges within the confines of the optic foramen and that subsequently tend to extend both intraorbitally and intracranially The latter grow at an unusually slow rate and have a tendency toward bilateralism The only symptom associated with the foraminate meningiomas is a slowly progressive blindness not accompanied with headache or pain These foraminate meningiomas should not be confused with the small tumors arising along the mesial part of the sphenoid ridge and producing visual symptoms secondarily by their encroachment on the optic nerve. Meningiomas arising from within the optic foramen were removed surgically in 3 cases at the Mayo Clinic In 2 the tumors were bilateral, and in the third it was unilateral The tumors were psammous meningiomas, and all had exhibited an amazingly slow rate of growth The presence of meningiomas attached to the sheath of the optic nerve may be explained adequately by the clusters or 'caps" of arachnoidal cells occurring abundantly along the intraorbital course of the optic nerve. Review of these cases serves to emphasize that slowly progressive blindness, unaccompanied with headache or pain is the only symptom to be expected in the presence of these tumors

Journal Pharmacology & Exper Therapy, Baltimore

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Psychosomatic Medicine, New York

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Radiology, Syracuse, N Y

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Further Studies on Influence of Dose Fractionation on Lethal X Ray Effect Produced by Total Body Irradiation in Mice. F Ellinger and J C Barnett.—p 90
Further Studies on Relation Between Radiation Effects Cell Viability, and Induced Resistance to Malignant Growth VI Anomalous Radiosensitivities of Analogous Mouse Mammary Adenocarcinomas A Goldfeder —p 93

Roentgen Therapy of Hidradenitis Suppurativa Axillaris —According to Schenck hidradenitis suppurativa is an inflammatory disease which has a predilection for certain regions of the body, such as the axillas, groins, breasts and perianal area. It is often diagnosed as abscess, furunculosis or carbuncle. Schenck reports on 58 cases of hidradenitis suppurativa axillaris In the early stages a small hard mass is seen, resembling a boil or a furuncle, which undergoes suppuration The furuncle either opens spontaneously or is lanced, leaving behind a hard marble-like nodule In favorable cases this residual mass slowly heals More commonly, the process spreads to areas near the primary focus These new abscesses pass through the same stages as the original lesion In the more advanced cases there may be undermining, burrowing sinus formation and cordlike thickening in the axilla. The authors employed roentgen rays only After the axillary hair has been removed, the axilla is irradiated with a 10 by 10 cm cone at 50 cm target-skin distance. In acute cases only 100 r (*in air*) are given, the dosage being increased as the severity of the disease diminishes In the chronic types 150 to 200 r (*in air*) are delivered at one sitting The other technical factors are 180 kv and 0.5 mm copper and 1 0 mm. aluminum filtration The half-value layer is 0 9 mm copper The axilla is thus irradiated three times a week for five to ten treatments, or a total of 1,000 to 1,200 r (in air) On the basis of the results obtained the author regards roentgen therapy as the most effective method of treating this condition.

Rhode Island Medical Journal, Providence

32 649-704 (Dec.) 1949

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South Dakota Journal of Medicine, Sioux Falls

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Surgery, Gynecology and Obstetrics, Chicago

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Combined Radical Cervicofacial Procedures for Primary Facial Cancer I Macdonald —p 16

*Premalignant Lesions of Ampulla of Vater R B Cattell and L J Pyrtek —p 21

Anatomy of Hernial Regions III Obturator Hernia and General Considerations B J Anson, L J McCormack and H C Cleveland —p 31

Effects of Injection of Penicillin, Peanut Oil and Beeswax, Separately and in Combination upon Nerve and Muscle Experimental Study T J Holbrook and C Pilcher —p 39

*Angiocardiography in Thoracic Surgery I Steinberg, C T Dotter and W DeW Andrus —p 45

*Consideration of Causes of Death Following Operation for Congenital Heart Disease of Cyanotic Type H T Bahnson and R F Ziegler —p 60

Arterial Anastomosis in Experimental Arterial Injury A D Callow and C S Welch —p 77

Occurrence of Epithelium and Glands of Intestinal Type in Gastric Mucosa L B Arey and R T Bothe —p 86

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Inguinal Hernias, Absence of Uterus, and Pseudohermaphroditism J N Ward McQuaid and G G Lennon —p 96

Use of Capsulectomy and Arthroplasty for Limitation of Finger Motion F L Liebolt —p 103

Experiences with Cardiac Arrest F H Lahey and E R Ruzicka —p 108

Premalignant Lesions of Ampulla of Vater —Cattell and Pyrtek report 2 instances of benign papilloma which produced symptoms and objective signs of obstruction of the common duct They report 4 cases of malignant lesions to emphasize the importance of the premalignant status of these benign lesions Cancer of the ampulla, which frequently arises in such lesions, is usually of low grade malignancy, metastasizes late and gives early symptoms, which lead to early diagnosis and treatment by radical pancreatoduodenectomy The benign lesions are relatively common, are important in the production of symptoms and are a source of malignant disease These benign lesions should be suspected in patients who have had a cholecystectomy with a recurrence of symptoms These lesions are small In most instances they can be diagnosed, if symptomatic, at operation by mobilization of the duodenum and head of the pancreas for accurate palpation and by duodenotomy with direct visualization of the ampulla of Vater One can diagnose carcinoma of the ampulla and head of the pancreas at operation by observing the dilatation of the extrahepatic biliary tree, by dilatation of the duct of Wirsung and by mobilization of the duodenum and head of the pancreas for accurate palpation of the ampulla and head of the pancreas

Angiocardiography in Thoracic Surgery —Steinberg and his associates used angiocardiography in aneurysms, dermoid, pericardial and bronchogenic cysts, thymic tumors, the lymphomas, bronchogenic carcinoma and chronic pulmonary inflammation, including tuberculosis and bronchiectasis They found this to be an important ancillary method in the study of any thoracic surgical problem The information which it yields is of great value in diagnosis, in determining operability and in the planning and carrying out of the surgical attack Data obtained by angiocardiography are most valuable when added to the routine roentgenographic studies, including fluoroscopy, conventional roentgenograms in various positions and esophagrams and bronchograms when indicated The demonstration of the safety of angiocardiography in over 1,000 cases indicates that it should be used routinely except in the few instances with contraindications, such as sensitivity to iodine-containing radiopaque compounds or severe renal disease

Causes of Death Following Operation for Congenital Heart Disease —Bahnson and Ziegler say that between Nov 30, 1944, and Sept 25, 1947, 500 patients with congenital heart disease and cyanosis were operated on in Johns Hopkins Hospital by Blalock and his associates Of these 500 patients 99 are dead In the 358 patients in whom the preferred operation was done, namely, a subclavian pulmonary end to side anastomosis the mortality rate was 12 6 per cent Twenty-two of the patients died as a result of cerebral complications Cardiac failure and pulmonary edema accounted for 15 deaths Hemorrhage was responsible for 7 deaths It is felt that the main bleeding was from the collateral vessels and not from the anastomosis Thrombosis of the anastomosis is a rare complication (5 cases), and for this reason anticoagulants are not used prophylactically Respiratory complications were responsible for only 4 deaths Two deaths resulted from operative shock Twenty-three patients died from miscellaneous causes The authors feel that the seemingly forbidding mortality rate of 1 patient in 5 must be balanced against the generally poor prognosis of patients with congenital heart disease and cyanosis No patient has been denied operation because of the severity of his illness, and several have died while in the hospital awaiting operation Regardless of complicating features, parents and adult patients ask that the operation be attempted even when informed of the risk The preferred age for operation is between 2 and 12 years, inclusive Prior to this period compensatory mechanisms are still developing and the operative procedure is more difficult because of small structures Beyond the age of 12 the distance between the systemic and pulmonary arteries is likely to be out of proportion to the length of the subclavian artery and one is more often required to use the carotid artery or to do an end to end anastomosis

West Virginia Medical Journal, Madison

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*Pulmonary Function Studies in Bituminous Coal Miners H L Motley —p 8

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Pitressin and Myocardial Infarction F R Whittlesey —p 38

Allergic Manifestations of Eye C T St Clair Jr and B W Bird —p 39

Pulmonary Function in Bituminous Coal Miners — Motley obtained measurements of ventilation, emphysema and the respiratory gas exchange in 56 bituminous coal miners with anthracosilicosis These findings were compared with those in previous studies made on anthracosilicotic anthracite coal miners The disturbances of respiration in anthracosilicosis were similar in bituminous and anthracite miners The chest roentgenogram was poorly correlated with the changes in function Measurements of vital capacity, maximal breathing capacity, residual air and the degree of emphysema, efficiency of the lungs for oxygen uptake, arterial blood oxygen saturation and the duration of dyspnea after exercise were the most important tests in evaluation of the impairment In some cases measurements on the pulmonary circulation are necessary The resting arterial oxygen saturation alone was poorly correlated with pulmonary function impairment, because the respiratory gas exchange measurements might be essentially normal at rest although during exercise gross abnormalities became manifest A significant degree of pulmonary emphysema occurred in about two thirds of the cases Fibrosis may result in disability by decreasing ventilation capacity and producing unequal alveolar aeration and perfusion (distribution factor) This unequal alveolar aeration and perfusion, rather than a true diffusion difficulty, is primarily responsible for the increased oxygen gradient between the alveoli and the arterial blood The limitation of compensatory hyperventilation produced most of the subjective complaints of dyspnea

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted Single case reports and trials of new drugs are usually omitted

British Journal of Ophthalmology, London

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*Treatment of Infected Corneal Ulcer by Subconjunctival Injection of Penicillin in Doses of 1 000 000 Units A Sorsby and R A Burn —p 16
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Convergence Deficiency Investigation into Results of Treatment. A Mellick —p 41
Contribution to Theory of *Vascular Origin of Glaucoma* E Dienstbier J Balik and H Kafka —p 47

Subconjunctival Injection of Penicillin —According to Sorsby and Burn adequate concentrations of penicillin can be obtained in the cornea and aqueous by subconjunctival injections Originally a dose of 50 000 units was used Subsequently the dose was increased to 500 000 units in one injection at 24 hour *intervals The authors treated 30* patients with infected corneal ulcer, generally complicated by hypopyon with doses of 1,000,000 units at *24* or 48 hour intervals A dose of 1 000 000 units of white crystalline penicillin, the only kind to be used for this purpose, dissolves in 1 cc. of water or in 0 5 cc of water and 0 5 cc of epinephrine (1 1 000) If severe iritis is present a mydriatic incorporated in the solvent will induce rapid mydriasis A smear and culture from the conjunctival sac should be taken and an epinephrine sensitivity test done. If a subcutaneous injection of 2 minims of epinephrine 1 1,000 gives no unpleasant reaction within 15 minutes it may be assumed that no harm will result. The patient should be given a subconjunctival injection of 1,000,000 units of white crystalline penicillin in a solution containing epinephrine, a mydriatic and distilled water No treatment is needed during the first 24 hours beyond keeping the eye bandaged and instilling atropine to maintain mydriasis If the condition shows improvement a further injection should not be needed until 48 hours after the first, but in severe infections it may be wise to give the second injection after 24 hours If after three or four injections it proves difficult to continue with subconjunctival injections the retrobulbar route may be used In 17 of the 30 cases the eye had been healthy previous to the onset of the infected corneal ulcer In 14 the response was prompt, and in *most* of these cases one injection would probably have been adequate In the 3 patients not responding to penicillin the corneal ulcer was due to bacilli insensitive to penicillin In the 13 cases of infected corneal ulcer in previously diseased eyes the result of treatment was satisfactory in 9 The described treatment brings *the condition under control* within 24 hours in most cases Corneal scarring is minimal and the visual results gratifying

Lancet, London

1 53 98 (Jan 14) 1950

Early Yield of Human Milk and Its Relation to Security of Lactation H Waller —p 53
Penicillin in Tissue Exudates After *Injection J Ungar —p 56*
*Treatment of Tuberculous Meningitis with Streptomycin S J M Russell and P MacArthur —p 59
Influenza in Isolated Community Epidemic on Ocean Island A. Isaacs M Edney M Donnelley and M W Ingram —p 64
Pemphigus Vulgaris Treatment with Aureomycin *F R* Bettley —p. 66
Carbon Tetrachloride Poisoning R W E Watts —p 66
Fixed Skin Eruption Due to Phenytoin Sodium R D Sweet —p 68
Reduction of Supracondylar Fractures of Humerus with Backward Displacement J J Shipman —p 68
Fatal Chronic Tracheobronchitis Due to Pseudomonas Pyocyanea in 2 Siblings J R O Brien —p 69
Urinary Excretion of Phenobarbitone After Single Large Dose A Thompson —p 70
Urinary Incontinence Cured by Operation Uncommon Case. M Kenny —p 71
Volvulus of Small Intestine Position of Relief R E B Tagart. —p 71

Streptomycin in Tuberculous Meningitis —Russell and MacArthur present observations on *33* children *who* were given streptomycin for tuberculous meningitis at the Royal Hospital for Sick Children in Glasgow between *January 1947 and September* 1949 At the beginning of the trials large doses were given both intramuscularly and intrathecally and were temporarily stopped on the appearance of toxic effects Later two schemes of treatment were evolved Scheme A begins with a twelve week course of continuous intramuscular treatment intrathecal injections are given daily during the first, third and sometimes the fifth weeks of the schedule. For the remainder of the period injections are given once a week into the subarachnoid space. *After the* initial twelve week course further treatment is not given unless indicated by the clinical condition or by a rising cell count in the cerebrospinal fluid Scheme B consists of three or sometimes four separate periods of treatment, each lasting four weeks, with intervals of fourteen days Throughout each of these periods intramuscular treatment is given daily During the first period intrathecal injections are given daily for the first week and on alternate days for the remainder of the period, during the second period the intrathecal injections are given on alternate days, during subsequent periods they are *given once weekly Experience suggests* that long intensive intrathecal treatment is unnecessary Eighteen of the 33 children are dead, 10 alive and well, and 5 alive but disabled The prognosis is relatively good in patients treated with streptomycin at an early stage of the disease, when the child is over the age of 2 years, and when a 'snowstorm" *roentgenogram of* the lung and choroidal tubercles are absent. If the child is under the age of 2 years, has had meningitis for more than seven days or shows a snowstorm" lung, choroidal tubercles or a spinal or tentorial block the prognosis is poor

1 99-144 (Jan 21) 1950

*Postoperative Paralysis in Upper *Extremity* Report of 5 Cases M R Ewing —p 99
Brachial Plexus Lesions After Cholecystectomy L G Kilob —*p 103*
Aetiology and Treatment of Auricular Flutter D H Makinson and G Wade —p *105*
Arsine Poisoning in Industry Report of Case. M Steel and D V G Feltham —p 108
Severe Urticaria Complicating Streptomycin Therapy D C Lindars —p 110
Exfoliative Dermatitis Complicating Streptomycin Therapy W C Harris and R V Walley —p 112
Acute Diverticulitis of Caecum and Ascending Colon R E Shaw and *J Siegler* —p *114*
Relapse in Typhoid Fever *After* Treatment with Chloramphenicol J N Briggs —p 115
Abnormality in Steroid Metabolism Associated with Rheumatoid Arthritis I F *Sommerville G F Marrian J J R Duthie* and *R J G* Sinclair —p 116

Postoperative Paralysis in the Upper Extremity —Ewing has encountered a number of cases of postoperative palsy of the upper extremity, in *2* of which the condition was widespread and severely *incapacitating* The distress caused the patient by this avoidable disability has been considerable The risk of such paralysis was known at the turn of the century, but it is the author's impression that the incidence has increased in recent years The wide use of curare may be partly responsible for the prevalence of this complication He *presents* evidence that stretching of brachial nerve trunks is an important factor The Trendelenburg tilt combined with abduction at the shoulder is a dangerous maneuver In *many operations* it is necessary to use an arm vein for injection of drugs or infusion of blood or isotonic sodium chloride solution, often the arm is raised and secured to an arm board for this purpose This occurred in all 5 of the *author's cases*

Medical Journal of Australia, Sydney

2 *901-928 (Dec 24) 1949*

Tuberculosis Survey of Children in Provincial City K G Kerr —p 901
*Hydatid Disease of Vertebrae L J Woodland —p 904
Prolapse of Nucleus Pulposus *in* Cervical Region Accompanied by Compression of Spinal Cord with Report of Case. *J* Isbister —p 910
Report of Case of Cerebro-Spinal Meningitis Due to Cryptococcus Histolytica (Torula Hominis) L W Alderman —p 914

Hydatid Disease of *Vertebrae* —*The frequency* of hydatid disease of bone has been estimated at between 0 59 and 2 24 per cent. The common sites affected are the vertebrae, the pelvis, the femur and the humerus The vertebrae are the most frequently *affected* bones, representing 50 per cent of the cases The spongy tissue of the vertebral bodies is a favorite site when hydatid disease attacks a bone. The infection, as with hydatid disease elsewhere, usually starts in childhood While it is confined to the bone, the growth of the hydatid is so slow that symptoms do not become evident before adult life In the cases reviewed the average age when symptoms occurred was 34 years There are no symptoms until the destruction of the bone leads to fracture or dislocation or until the hydatid cyst has erupted from the bone and caused pressure or swelling In 4 of the 5 cases reviewed by Woodland there were symptoms of pressure on the spinal cord Four of the patients died, the average duration of life after the onset of symptoms being 11 years The original site of infection in 3 cases was the upper lumbar vertebra and in 2 cases the midthoracic vertebra The diagnosis of vertebral hydatid disease is difficult The general condition is usually excellent Symptoms are due to fracture or subluxation of the affected vertebra or to pressure by extraosseous extensions, which may be confused with lipoma or cold abscess Although vertebral hydatid disease has no pathognomonic radiologic signs, certain features, such as absence of periosteal reaction, minimal collapse, slight involvement of intervertebral spaces only, increased density of bone together with areas of destruction and involvement of contiguous ribs when a thoracic vertebra is affected aid in the diagnosis

Tubercle, London

30 265-288 (Dec) 1949

What is Atelectasis? C Xalabarder —p 266

31 1-24 (Jan) 1950

*PAS in Pulmonary Tuberculosis J Lehmann and others —p 2
Tuberculosis Services of Future F Heaf —p 11

Paraaminosalicylic Acid in Pulmonary Tuberculosis —Lehmann and associates report on results obtained with paraaminosalicylic acid in six sanatoriums for tuberculous patients in Sweden The diagnosis of tuberculosis was definitely established in patients selected for treatment, and the pulmonary process was either progressive or stationary but not regressive The disease was moderately or far advanced and the patient given ordinary sanatorium care for at least two months An average of 14 Gm paraaminosalicylic acid a day, in four to six doses was given orally The treatment was continued for at least one month, and the patient was observed for at least three months The authors analyze results obtained in 378 cases, including 205 selected cases The most impressive effect was seen in the lowering of the temperature, sedimentation rate, gain in appetite and weight and the general condition of the patient The changes usually began one to three weeks after treatment with the drug was begun The simultaneous decrease in sputum and conversion together with regression in the pulmonary infiltrations and cavities further increased the impression that treatment with paraaminosalicylic acid converges a progressive phase of the disease into a healing phase

Acta Chirurgica Belgica, Brussels

48 421-520 (Oct) 1949 **Partial Index**

Contribution to Surgical Pathology of Small Intestine, Ileitis and Aspecific Granulomas A de Scoville —p 421
*Use of Whole Skin Grafts in Treatment of Hernias and Eventrations Late Results Lessons to be Derived from Two Reinterventions A Dumont and M van der Ghinst —p 456

Skin Grafts for Hernias and Eventrations —Dumont and van der Ghinst used whole skin grafts in the repair of hernia and eventration in 22 patients between the ages of 24 and 75 years Thirty-one grafts were applied to these patients, 8 of whom had unilateral hernia, 12 bilateral hernia and 2 eventration There was no operative death and no postoperative complication except phlebitis in 1 patient Seven patients were lost from observation, and 15 patients, with 22 grafts, were followed Satisfactory results were obtained in 4 of 5 patients with unilateral hernia Twelve of sixteen grafts in 9 patients with bilateral hernia and one graft in a patient with eventration were satisfactory Grafts were again applied in 2 of the 5 recurrences In contrast to Mair's assertion, the pilosebaceous follicles had not undergone degeneration and not the slightest intolerance was manifested These observations suggest that special care should be given to the closure of the hiatus of the graft. Whole skin grafts are recommended for, and should be restricted to, repair of hernias with severely weakened posterior wall of the inguinal canal

Archiv fur Kinderheilkunde, Stuttgart

138 1-64 (No 1) 1949 **Partial Index**

Pathogenesis of Meconium Ileus W Zischka.—p 1
Evaluation of Blood Transfusion in Dystrophic Suckling Infants Clinical Statistical Study D Roland —p 4
Statistical Studies on Relation Between Scarlet Fever Susceptibility and Body Weight Role of Malnutrition F Küster and H Goedecke —p 27
*Therapy of Meningitis Caused by Bacterium Coli in Suckling Infants E Grundler —p 43

Therapy of Meningitis in Infants —Grundler reports 2 cases of meningitis caused by Escherichia coli, in 1 infant aged 8 weeks and in 1 aged 10 weeks The younger infant was given 12,000 units of penicillin every three hours by the intramuscular route (total 1,500,000 units) followed by 100,000 units by the intrathecal route Penicillin therapy was combined with oral administration of sulfathiazole and a mixture of equal parts of sulfamerazine and the 4-aminomethylbenzene sulfonamide salt of sulfathiourea The older infant was given 2 courses of penicillin with a total of 2,400,000 units by the intramuscular route and 140,000 units by the intrathecal route Penicillin was combined with oral administration of sulfonamide compounds Streptomycin was administered in doses of 0 1 Gm two times daily by the intrathecal route during the interval between the two courses of penicillin Both infants made a complete recovery The result is noteworthy because in vitro penicillin seems to have no effect or to affect only certain strains of Esch coli There is also the possibility that the salutary results were due to the sulfonamide compounds and to the intrathecal therapy

Deutsche medizinische Wochenschrift, Stuttgart

74 1485-1516 (Dec 9) 1949 **Partial Index**

*Cerebral Disease in Relation to Gastric Ulcer M Staemmler —p 1485
*Skin Lesions Due to Handling or Treatment with Streptomycin K H Schafer and E Oppermann —p 1491
Cytodiagnosis of Malignant Tumors Smears from Gastric Mucosa S Sandkuhler and H J Streicher —p 1496
Significance of Physiology of Hearing for Practice of Cardiac Auscultation K Holldack —p 1497

Cerebral Disease and Gastric Ulcer —Staemmler investigated the neurologic and neurosurgical necropsy material at his hospital for erosions and ulcerations in stomach and duodenum Among 36 patients with acute fatal brain lesions (operations on the brain, suppurating meningitis, encephalitis and the like), there were 10 with erosions of recent date in the stomach or duodenum These cases do not include observations on the newborn Among 50 cases with chronic brain lesions (old injuries, abscesses and tumors), only 1 had a scar in the duodenum, a recent, still active ulcer was never observed Evidence indicates that the gastroduodenal erosions which exist in the presence of severe cerebral lesions are the result of a centrally induced circulatory disturbance, which begins with hyperemia and develops into hemorrhagic infarction The mucosa thus damaged is eroded by the gastric juice A causal connection exists between the cerebral lesion and the erosion in stomach or duodenum, which may be limited to the mucosa or may penetrate the entire wall and lead to perforation In some cases a hemorrhage in the mucosa may be sufficient to reduce resistance to the digestive action of the gastric juice Such hemorrhages of central origin are known to occur also in the lung and in the mucosa of the bladder It is difficult to ascertain whether the erosions of central origin may develop into true chronic ulcers The author believes that this is the exception and that the erosions usually heal when the cerebral irritation subsides His investigations provided no proof that true chronic gastric or duodenal ulcers developed from the centrally induced erosions

Skin Lesions Resulting from Handling of Streptomycin —Schäfer and Oppermann discuss skin lesions occasionally observed in physicians and nurses who handle streptomycin or in patients who have been treated with the drug The dermatitis usually involves the hands and occasionally the region of the eyes, in severe cases it may involve extensive areas of skin One may prevent such attacks or may reduce their intensity after they have developed by wearing rubber gloves and goggles while handling streptomycin In severe sensitivity it may be necessary to avoid all contact If the dermatitis develops in patients it is seldom severe enough to require treatment or the interruption of the administration of streptomycin

Finska Lakaresällskapets Handlingar, Helsingfors

92 1-198 (No 1) 1949 Partial Index

Nuclear Physics and Medicine II Contribution of Nuclear Physics to Medicine H Zilliacus —p 49
Anesthesia in Childbirth R *Jäfs* —p 98
Leukocyte Picture in Acute Grave Gastroenteritis and Intoxication in Infants P Forssell —p 115
*Abdominal Aortography B Lindstrom —p 123
Solitary Massive Splenic Cysts H E Blomquist.—p 135
Concretions in Pancreas Review in Connection with 2 Cases G F Saltzman —p 159

Abdominal Aortography —Lindstrom has applied Dos Santos' technic for aortography in 50 patients, all under intravenous anesthesia, which is preferable to spinal anesthesia Sodium iodomethamate in 75 per cent solution as the contrast medium gave satisfactory results Serious complications did not occur There were 42 cases of organic vascular disease in the lower extremities In 2 cases complete obliteration of the abdominal aorta immediately below the inferior mesenteric artery was diagnosed, and in 13 complete obliteration of one of the common iliac arteries In 8 cases aortography was used in diagnosis of abdominal tumors and renal disease partly as a supplementary method of examination, partly as the decisive method of diagnosis The author finds aortography a valuable method of examination in advanced arterial disease of the lower extremities and an aid to diagnosis in obscure abdominal tumors and renal disorders He considers puncture of the aorta in experienced hands as simple a procedure as lumbar puncture and hardly more of a risk for the patient. The iodine sensitivity of the patient should be tested in all cases of aortography

Nederlandsch Tijdschrift v Geneeskunde, Amsterdam

93 4009-4076 (Nov 26) 1949 Partial Index

P T (Phosphate Toxoid) New Toxoid for Diphtheria Prophylaxis A L Noordam A C Brandwijk A. Tasman and W A Timmerman. —p 4014
Intravenous Iron Therapy in Hypochromic Anemia J Gerbrandy —p 4020
Pharmacologic Aspects of Iron Saccharate Solution for Intravenous Therapy O M de Vaal and M J Diepenhorst.—p 4029
Preparation of Iron Saccharate Solution for Intravenous Therapy J C de Jong and J B Lenstra.—p 4033
Hyperthyroidism in Children D P R. Keizer —p 4037

Phosphate Toxoid in Prophylaxis in Diphtheria —Noordam and his co workers say that the phosphate toxoid prepared by the Institute for Public Health in Utrecht consists of a diphtheria toxoid prepared by ultrafiltration and extraction with ammonium sulfate and adsorbed on aluminum phosphate. This new toxoid (phosphate toxoid) was tried in 67 adults, who were given either two injections of 0 5 cc. each or one of 0 5 and one of 0.2 cc Sixty-four of these persons were completely immunized Reactions were slight The phosphate toxoid was used in Amsterdam in two groups of children, numbering 154 and 73 Immunization was successful in 151 and 72 respectively, that is in more than 98 per cent The reactions were slight

Intravenous Iron Therapy in Hypochromic Anemia —Gerbrandy treated 9 patients with severe hypochromic anemia with intravenous injections of a solution of ferrum saccharatum This preparation had an iron content of 2 per cent, and each injection provided 100 to 200 mg of iron Injections were given for ten to fourteen days The total dose of iron was 1 200 to 2,000 mg The result was a rapid increase in the hemoglobin content of 1 to 4 per cent per day and the reticulocyte crises varied between 6 and 25 per cent. The blood volume increased simultaneously in 2 out of 3 patients Thus the increase in hemoglobin was even greater than was indicated by the hemoglobin content Thrombosis of injected veins the development of painful infiltrations as the result of paravenous injection, hemolysis and general vascular reactions after too rapid injection were undesirable complications but these could be largely prevented by slow injection and by employment of different veins for consecutive injections

Revista de la Asociación Méd Argentina, Buenos Aires

63 577-620 (Dec 15-30) 1949 Partial Index

*Benign Chondrosteoblastoma O Copello —p 577
Multiple Laryngo-Tracheo-Bronchial Tuberculous Polyposis J Jimenez Herrero and A E Bence —p 605

Benign Chondrosteoblastoma — Copello reports on 54 patients with benign chondrosteoblastoma Trauma or surgical intervention on the benign tumor in 4 patients caused the tumor to develop into a secondary malignant osteoblastoma, malignant chondrosteoblastoma malignant mixoblastoma or a malignant fibroblastoma The giant variety of the tumor, not previously described, was observed in 7 patients The giant tumor is painless and benign but may become malignant The tumor is sessile, with a wide base, and grows rapidly from the cartilage, up to the size of a child's head Local pain, heat and a venous network indicate transformation of a benign tumor into a malignant one The roentgen diagnosis is made by the changes in the tumor shadow, showing irregular borders, break in the continuity of the tumor with the bone in which it originated and infiltration into the soft tissues Calcification of the cartilage is frequent The differential roentgen diagnosis between the benign and malignant giant tumor should be confirmed by biopsy These tumors do not respond to roentgen therapy Treatment is not necessary as long as they are symptomless and benign Surgical removal of a benign giant chondrosteoblastoma is indicated (1) when the tumor is very large, (2) if it causes displacement or changes in the adjacent bone or causes functional disorders, and (3) for esthetic reasons The operation should be as conservative as possible If the continuity of a large bone is interrupted during the removal of a huge tumor a bone graft should be immediately placed Transformation of a benign giant chondrosteoblastoma into a malignant tumor calls for amputation of the limb A diagnostic error about the character of the tumor may lead to an unnecessary mutilation or to a dangerous delay in performing the operation

Ugeskrift for Laeger, Copenhagen

111 *1467-1492* (Dec. 29) 1949 Partial Index

*Treatment of Pneumonia in Children with Single Massive Doses of Sulfathiazole C Friderichsen and T Walther —p 1467
*Treatment of Pneumonia in Children H Buch —p 1476
Diphtheria Tetanus Vaccination and Prophylactic Treatment of Lesions in Patients Vaccinated Against Tetanus I Scheibel —p 1480

Treatment of Pneumonia in Children with Massive Dose of Sulfathiazole —Friderichsen and Walther report on 875 cases of pneumonia in children treated with a single massive dose of sulfathiazole. No injurious effect was *noted on the* blood or kidneys The dose was 0 30 Gm sulfathiazole per kilogram of body weight When the body weight exceeded 13 Kg the maximal dose was 4 Gm (with 5 Gm in exceptional cases) In severer pneumonia the massive dose sometimes had to be repeated after 24 to 48 hours As a rule the temperature fell in 12 to 24 hours after administration of the drug One and a half hours after administration the sulfathiazole concentration in the blood was about 5 mg per hundred cubic centimeters and four hours afterward, about 10 *mg per hundred* cubic centimeters The total mortality was 4 9 per cent Excluding the patients who were moribund on admission and those with congenital defects, the mortality was 0 46 per cent and, excluding only the cases with congenital defects, 2 46 per cent. The authors assert that a massive dose gives better results than continuous treatment and is easier to administer

Pneumonia Treatment in Children —Of 554 children with pneumonia, of whom 236 were aged less than 1 year, 211 were treated with a single massive dose of sulfathiazole, 69 with two massive doses and 274 with one massive dose and penicillin The total mortality was 6 1 per cent Of the 33 deaths 31 were among children under 1 year of age, 15 deaths were due to pneumonia and 18 to complicating diseases (congenital heart disease acute malignant tracheobronchitis grave malformations) Buch finds that the treatment with one massive dose of sulfathiazole or sulfathiazole and penicillin, gives better results than continuous treatment and that the complications are few and unimportant The decrease in temperature is usually rapid. The practical advantage of a single dose makes the treatment well suited for children

Book Notices

THE REVIEWS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES AND DO NOT REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED

A History of Oto Laryngology By R Scott Stevenson M D F R C S, and Douglas Guthrie M D F R C S Cloth $5 Pp 155 with 52 illustrations Williams & Wilkins Company Mt Royal & Guilford Aves, Baltimore 2 1949

The authors claim that this is the first history of the specialty of otolaryngology, although they do credit previous works on otology and laryngology several of which are mentioned Nevertheless their little volume is a welcome addition to the literature because it covers everything of importance in the origin and development of the specialty Beginning with the earliest references to diseases of the ear, nose and throat as described in the papyri of Ebers and Smith, they carry the story through the Middle Ages and the Renaissance to the development of otology as a science the education of the deaf and the founding of laryngology and otology as they are known today Many brief biographic sketches add interest to the narrative

The work represents a great deal of research which has been thoroughly condensed into a volume of minimal size but maximal content An extensive bibliography and complete index add considerably to its value It is a well documented record that every otolaryngologist may read with profit and pleasure

The 1949 Year Book of Radiology (June 1948 June 1949) Radiologic Diagnosis edited by Fred Jenner Hodges M D Professor and Chairman Department of Roentgenology University of Michigan Ann Arbor and John Floyd Holt M D Associate Professor Department of Roentgenology University of Michigan Radiation Therapy edited by Isadore Lampe M D Associate Professor Department of Roentgenology University of Michigan Colth $6 50 Pp 458 with 193 illustrations The Year Book Publishers Inc 200 E Illinois St Chicago 11 1949

This is the eighteenth publication of this year book The book is divided into two major sections, one on radiologic diagnosis edited by Drs Fred Jenner Hodges and John Floyd Holt and the other on radiation therapy edited by Dr Isadore Lampe The editors have followed the usual pattern of previous editions The articles selected for abstract cover the major developments in radiology published between June 1948 and June 1949 The abstracts are sufficiently detailed to present the substance of the original publications There is a noticeable paucity of foreign sources as compared to those of some years ago While this year book offers a valuable source of information on the newest in its field, it covers a number of articles published in other than radiologic journals

It should be of interest to anyone wishing to keep abreast of radiologic advances The excellent quality of the abstracts with adequate illustration maintains the same high quality of previous years The index is complete and informative

Dental Anatomy The Form and Function of the Permanent Teeth By Robert C Zeisz, D D S F A C D, F I C D Chairman of the Divisions of Tooth Morphology and Applied Dental Anatomy University of California, San Francisco, and **The Form and Function of the Deciduous Teeth** By James Nuckolls D D S F A C D Professor of Operative Dentistry, University of California Cloth $14 Pp 486 with 427 illustrations The C V Mosby Company 3207 Washington Blvd St Louis 3 1949

This is a beautifully illustrated textbook written mainly for the undergraduate student of dentistry The material covered is confined primarily to the external and internal anatomy of each of the permanent and deciduous teeth The relationship of one dental arch to the other in centric, protrusive and lateral occlusion is discussed sufficiently A glossary of dental terms used in the text is included

The orderly arrangement of the material and the use of paragraph headings make the book ideal for quick reference One feature which contributes to the clarity of the book is the use of well labeled diagrammatic outlines opposite the artist's illustrations The latter are particularly fine This book should be of great value to dental students and teachers of dental anatomy

Medical Photography Radiographic and Clinical By T A Longmore Hon F S R Principal Kodak School of Medical Radiography and Clinical Photography London With a Foreword by Brigadier D B McGrigor O B E M B Ch B Consulting Radiologist The War Office London Fourth edition Cloth Price 50s Pp 1008 with 440 illustrations The Focal Press 31 Fitzroy Sq London W 381 4th Ave New York 16 1949

This book was originally published in 1944 as a training manual for medical personnel in "H M Forces during the war Several chapters have been added to the present edition More illustrations have been included and additional technics are discussed The book is increased in size from 400 to 3,000 pages One third of the book deals with radiographic technic Two thirds are devoted to photographic principles and clinical photography The material is divided into eight sections covering the photographic process photographic considerations in radiography, clinical photography, clinical photo technic, reproduction and processing color photography, special technics and an appendix

Eighty-five pages are devoted to color photography, however only 10 pages deal with color technics which may be of practical value to the average reader Several pages are devoted to a discussion of the Dufay color process which is used more widely in England than in the United States Apparently the author has had his greatest experience in the field of radiography, since that section is well organized and presents information useful to the x-ray technician Much of the photographic material is of a type furnished in booklet form by the manufacturers of photographic supplies

Many physicians will not be especially interested in such material as the basic theory of photography and photographic optics They would appreciate more information on the practical or useful application of photography to medical subjects

The bibliography is brief and does not include many references to excellent articles dealing with the subject of clinical photography The references to the subject of radiography are more complete The diagrams and photographic illustrations are excellent X-ray technicians who would like to extend their knowledge to the subject of photography may find this book of some value

Modern Practice in Anaesthesia 1949 Edited by Frankis T Evans M B B S F F A R C S Cloth $12 50 Pp 566 with 228 illustrations Paul B Hoeber Inc Medical Book Department of Harper & Brothers 49 E 33rd St New York 16 1949

Dr Evans ably assisted by 24 other authors (most of them physicians associated with well known hospitals and medical schools in the London area), has presented one of the most complete volumes now available on the general aspects of modern practice in anesthesia A wealth of material is concisely presented The book is divided into 38 chapters The material is well organized and admirably illustrated Many chapters are followed by a list of references An adequate index is included

This volume begins with an 18 page review of historical events concerned with the advances in anesthesia The impression is gained that the author is much more familiar with the history of anesthesia in England than in America He speaks of Horace Wells clinical demonstration in Boston General Hospital (should be Massachusetts General Hospital), and Crawford Long's administration of ether to James M Venables (should by Venable) in 1842 Edmund Andrews valuable contribution in the introduction of the use of oxygen with nitrous oxide in 1868 and Dennis E Jackson's use of trichlorethylene as a general anesthetic in 1934 are unfortunately omitted One of Jackson's associates who published an article on trichlorethylene in 1935 was referred to as 'Stricker instead of 'Striker"

Particularly to be commended are the inclusion of chapters dealing with fundamental subjects such as anatomy, physiology, chemistry, pathology and cardiology for the anesthetist These chapters were written by authorities in these various specialties Blood transfusion and fluid replacement therapy were presented by the pathologist who is the medical officer of the British Red Cross Society's London Blood Transfusion Service

Surgeons contributed discussions on local analgesia and abdominal field block in combination with light anesthesia, any anesthesia and analgesia in ophthalmic surgery Several chapters are devoted to discussions of anesthetic management in various surgical specialties and certain specific pathologic conditions Valuable guides for the proper anesthetic management of patients with diabetes mellitus or asthma are presented Shock in relation to anesthesia is also considered Chapters are included which present some of the more recently considered aspects of proper anesthetic management such as oxygen therapy anesthesia in the aged and posture in anesthesia

Three excellent chapters deal with the preparation of the patient anesthetic emergencies and postoperative care and treatment A chapter concerned with volatile narcotics and the anes thetic gases contains up to date and important discussions of cyclopropane and 'controlled respiration The role of curare in anesthesia is ably presented Several of the newer curarines are included

The book would be enhanced by brief statements in several chapters in regard to the valuable properties of ethylene and its clinical indications both in certain types of surgery and in the presence of certain seriously disturbed body functions While the chapter on spinal anesthesia and analgesia contains much important material no mention is made of the catheter method of fractional or continuous spinal anesthesia Some aspects of the management of patients during spinal anesthesia are different from practices in this country Likewise the discussion on anesthesia in obstetrics contains but brief mention of spinal analgesia and suggests that this method as it is now employed in many institutions in America has not had much trial in Britain Certain authors in America are not in agreement with the suggested generous intravenous use of thiopental sodium before the fetus is delivered

Among other subjects covered are description of apparatus the signs of anesthesia premedication basal narcosis by means of rectal injection intravenous anesthesia intercostal paravertebral epidural and caudal block endotracheal anesthesia balanced anesthesia and anesthesia in children thoracic surgery neurosurgery repair of cleft palate in infancy bronchoscopy thyroid and thymus surgery genitourinary surgery rectal surgery and dental surgery Occasional instances of British drug terminology may confuse the American reader however the minor criticisms of this volume should not detract materially from its excellence as an up to date textbook on anesthesia for international use

Industrial Microbiology By Samuel Cate Prescott Sc D and Cecil Gordon Dunn Ph D Associate Professor of Industrial Microbiology in the Department of Food Technology Massachusetts Institute of Technology Second edition Cloth $8 50 Pp 923 with 124 illustrations McGraw Hill Book Company Inc 330 W 42nd St New York 18 Aldwych House Aldwych London W C 2 1949

Although in their introduction the authors state Industrial microbiology is that portion of microbiological science which deals with the possible utilization of micro organisms in industrial processes or in processes in which their activities may become of industrial or technical significance the present volume regards industrial microbiology as the science and art of investigating and controlling technical fermentations that is of using micro-organisms as reagents to produce desirable end-products having possible or well defined industrial uses and applications

The text includes chapters on the fermentation processes associated with the production of alcohols organic acids and other substances the role of micro-organisms in food manufacturing and food conservation methods the production and uses of mold enzyme products the manufacture of antibiotics and the microbiology of textiles and wood Several new chapters have been added since the 1940 edition along with an extensive increase of information in other chapters Appendixes include discussions of disinfection and disposal of industrial microbiologic wastes

The volume is well documented with bibliographies diagrams photographs and tables It will interest readers and students who are familiar with the basic principles of bacteriology and biochemistry and those concerned with research and practical application of those sciences

Clinical Electroencephalography By Robert Cohn M D Electroencephalographer and Director of Neurological Research U S Naval Hospital Bethesda Maryland Cloth $14 Pp 639 with 300 illustrations McGraw Hill Book Company Inc 330 W 42d St New York 18 Aldwych House Aldwych London W C 2 1949

This is a thick 4½ pound atlas of electroencephalography printed on good paper with 8½ by 11 inch pages The left hand page contains a concise clinical history and an even more concise description and interpretation of the patient's electroencephalogram On the opposite page is a reproduction of a 20 second sample of the tracing There are 273 pages of such tracings An introductory chapter explains something of the theory and technic of electroencephalography Patients have been divided into 15 groups on the basis of clinical diagnosis and the percentage distribution of normal and abnormal tracings has been determined for each group These results are compared with results for a group of 251 healthy young adults Records of nearly 4 000 patients are thus analyzed Altogether the book represents an immense amount of labor and contains a mass of material of interest to all concerned with electroencephalography and with disorders of the human brain

Certain limitations have been noted Observations were made at the United States Naval Hospital at Bethesda Md , hence the case material is heavily weighted with young men and with head trauma and headache For the beginner there might be more detail about technic and the reasons for the classification of individual tracings shown The person experienced in electroencephalography will find little reference to the observations of other workers or discussion of debatable points in this new field More complete utilization of the blank spaces on the left hand pages and a reduction in the number of tracings displayed might have resulted in a decreased cost without a decrease in value to the reader

Pyramideneiterungen Deren Verhütung und Behandlung Von Prof Dr O Voss Cloth 36 marks Pp 256 with 71 illustrations Georg Thieme Diemershaldenstrasse 47 (14a) Stuttgart O Agents for U S A Grune & Stratton Inc 381 4th Ave New York 16 1949

The word pyramid in the title of this book denotes the pyramis ossis temporalis which includes the mastoid process and on page 11 it appears that the author has attempted to find a more satisfactory term than the English petrositis" and the French l osteite profonde du rocher These questions of terminology are taken up in an introduction which is probably illuminating to readers already familiar with the subject but thoroughly confusing to one in search of a real introduction It is followed by detailed well illustrated discussions of the anatomy physiology pathology bacteriology untreated course and prevention of petrositis The author s opinions are based on 64 minutely and personally studied cases An especially valuable part of the book is the 90 page section on treatment including surgery Even here unfortunately the author s propensity for complex modes of expression makes reading difficult there are passages in which each sentence in turn represents a hurdle The book is attractively bound well indexed and provided with a scholarly bibliography but written with so little regard for the foreign reader that it can be recommended only to specialists in otology with exceptional command of German

The Rockefeller Foundation International Health Division Annual Report 1948 Paper Pp 222 with 13 illustrations The Rockefeller Foundation 49 W 49th St New York 20 [n d]

The Rockefeller Foundation was founded in 1913 'to promote the well being of mankind throughout the world" The program of the foundation is concerned with certain definite problems in the fields of medical science natural science, social science, the humanities and public health Except to a limited degree in public health the foundation is not an operating agency It contributes toward those activities of institutions and organizations which give promise of advancing the objectives of its program and in addition, in the field of general public health activities and the study and control of certain diseases

The Annual Reports of the International Health Division of the foundation are not dull reproductions of statistics but are interesting and absorbing progress notes of the various problems of research and application in the field of public health throughout the world Malaria, yellow fever and other virus diseases were the chief problems of research in 1948 The division coordinates field work with laboratory research which is performed in its New York laboratories and in other laboratories supported by the division The 1948 report states, "The aim of the International Health Division in contributing to the solution of public health problems has remained constant to help these countries help themselves to a higher standard of living by providing funds and counsel for the training of public health personnel, the study of public health problems and the demonstration of modern public health methods" The Division sponsored a pamphlet entitled "Health Hints for the Tropics," which provides clear and detailed information for lay persons on care to be taken in regard to the climate, water, food, insects and insect vectors of disease, immunizations and personal hygiene

The research, field work and public health problems supported by the division cannot adequately be covered in this review It includes fascinating sections on selective breeding of mosquitos to produce generations highly susceptible to malarial infection for in vitro studies (the majority of the insects are normally refractory), the use of radioactive isotopes in the water of ponds infected with larvae of mosquitos which transmit yellow fever, to determine distribution of the adult forms (air movement appears to be the major factor), and studies of the etiologic agents of syphilis and yaws, including delineation of the important factors essential to the in vitro survival of virulent Treponema pallidum Cursory reports of the aid rendered to state and local health services, to medical care programs and to schools for public health education are also incorporated A table of expenditures which lists all activities for the foundation s public health work from 1913 through 1948 concludes the report, the total expenditures of the international division in 1948 exceeded $89,000,000

Die Erkrankungen der endokrinen Drüsen Von Prof Dr med et phil Adolf Oswald Cloth Price, 58 Swiss francs Pp 580 with 44 illustrations Hans Huber, Marktgasse 9 Bern 16 distributed by Grune & Stratton, Inc 381 4th Ave New York 16 1949

This Swiss textbook on endocrinology written in German is arranged according to the usual pattern of books of this type After an introductory section on the physiology of each endocrine gland, there is a brief discussion of the pathology followed by a summation of the clinical aspects of various endocrine disorders

The book is well written and arranged but suffers from the serious defect that, although published in 1949, there are only rare references to anything in the literature subsequent to 1937 Apparently the author had no access to the world literature of the last decade, hence the book is entirely out of date as viewed from American standards This is to be regretted, because the book otherwise appears to be fairly critical and presents succinctly the general subject in a satisfactory manner There are however, some minor errors, such as an erroneous formula for epinephrine (page 373) and references to many concepts (e g dysproteinism, page 143, and consideration of the prococity of hypothalamic disorders as pineal dysfunction, page 163) which detract from the general value of the book It cannot be recommended to the American reader

Investigations on the Course and Localisation of Magnesium Anesthesia A Comparison with Ether Anesthesia By Lise Engbæk Translated from *Danish* by Aase Holst with the Assistance *of* Dr Gerda Seidelin Wegener Denne afhandling er af det lægevidenskabelige Fakultet antaget til offentlig at forsvares for den medicinske Doktorgrad, København 1947 Paper Pp 189, with 18 illustrations Nyt Nordisk Forlag Arnold Busck Copenhagen 1948

This small volume, translated from the Danish presents a concise review of the pharmacologic effects of magnesium salts, particularly as compared with the effects of ether It contains reports of considerable experimental work performed by the author as well as an excellent review of the literature on the subject Its content is largely technical and experimental and will be most interesting to the pharmacologist and experimental worker rather than to the clinical anesthesiologist The bibliography contains 192 references

The British Pharmaceutical Codex 1949 Published by Direction of the Council of the Pharmaceutical Society of Great Britain Cloth £3 3s Pp 1562 The Pharmaceutical Press 17 Bloomsbury Sq London W C 1 1949

"A book of reference for pharmacists and medical practitioners on all drugs and medicines in common use throughout the British Empire (including those in the British Pharmacopoeia) and a book of standards for drugs and preparations not included in the British Pharmacopoeia," 1948 edition About 850 monographs are arranged in the general monographs section containing agents not classified under other sections on antiserums and vaccines preparations of human blood, surgical ligatures and sutures and a formulary The monographs contain brief statements on pharmacology and therapeutics, methods of administration, symptoms and treatment of poisoning in the case of the more toxic materials pharmaceutic uses of drugs, dosages standards in the case of drugs not in the British Pharmacopoeia and lists of 'relevant preparations of the British Pharmacopoeia and British Pharmaceutical Codex" Material on sterilization, solubility and storage often is included It is interesting that metric values are given first in the dosages and formulas There are listed in a separate leaflet the brand names most common in the British Empire for substances (or for preparations containing the substances) included in the Codex as generic appellations

Pharmaceutical Emulsions and Emulsifying Agents By Lawrence M Spalton B Pharm M P S Paper 5s 6d Pp 132 with 4 illustrations The Chemist & Druggist Morgan Bros (Publishers) Ltd 28 Essex St, Strand London, W C 2 [n d]

The purpose of this book is to classify and present the essential practical details relating to a large number of available pharmaceutic emulsifying agents Addressed primarily to the practicing pharmacist and student of pharmacy, the presentation is inclusive and clear important principles being repeatedly interpreted

The author begins with a brief explanation of the fundamental principles of emulsions and then discusses types of emulsifying agents, the use of these agents in the formulation and preparation of emulsions, the methods and mechanics of producing emulsions and the preservation and storage of the finished product

An excellent classified list of emulsifying agents is included, giving the trade name of the product, its composition, chemical name or formula, its uses and type and the manufacturer Some slight errors in formula were noted The lack of an index is a detriment if the book is to be used for reference

Om den akute kulilteforgiftning En klinisk studie med særlig henblik paa komplikationerne [By] Vagn Zahle [Acute Carbon *Monoxide* Poisoning Clinical Study with Special Consideration of Complications] Denne afhandling er af det lægevidenskabelige Fakultet ved Københavns Universitet antaget til offentlig at forsvares for den medicinske Doktorgrad, 1948 Paper Pp 296 with 7 illustrations Universitetsforlaget i Aarhus Denmark 1948

This work is a monographic account of acute carbon monoxide poisoning with a special consideration of neurologic sequelae After a general review of the subject, the author presents a series of 1,304 cases with follow-up study This series is analyzed with respect to the source of poisoning, sex and age, pathologic conditions existing in the patients before the intoxication, the degree and duration of the impairment of consciousness, acute neurologic symptoms, cerebrospinal fluid findings, immediate causes of deaths (6 1 per cent), postmortem cerebral findings and the residual neurologic changes in the survivors Neurologic complications developed in 2 1 per cent of the cases, and the histories of these are given This incidence is about the same as that reported by other observers The neurologic symptoms are described in considerable detail From his analysis the author believes that the acoustic, hemiplegic and neurasthenic syndromes are more frequent than previously supposed, while the extrapyramidal, aphasic, apractic and agnostic syndromes are much rarer He confirms, however, that memory disorders predominate He found encephalographic changes frequent The prognostic significance of various preintoxication factors and various acute symptoms is discussed Older age, especially when associated with arteriosclerosis, predisposed to a more serious outcome A decided parallelism was shown between the intensity of impairment of consciousness and the severity of the subsequent course, as might be expected Disturbances of plantar reflexes and the presence of comparatively rare acute symptoms were frequently followed by a malignant course

The modern methods of treatment of carbon monoxide poisoning are reviewed, and the author makes a number of recommendations based on his own experience The effectiveness of any known treatment of late complications is claimed to be slight In connection with prophylaxis it is recommended that illuminating gas be detoxicated

The material is freely illustrated with tabulated data and is documented with 511 references Summaries in Danish, German and English are included. This monograph constitutes an important contribution to the literature dealing with carbon *monoxide poisoning*

Huang Ti Nei Ching Su Wên The Yellow Emperor s Classic of Internal Medicine By *Ilza Veith M A. Ph D Lecturer in the History of* Medicine The University of Chicago Chapters 1 34 Translated from the Chinese with an Introductory Study Cloth $5 Pp 253 with 24 illustrations. The Williams & Wilkins Co Mt Royal & Guilford Aves Baltimore 2 1949

The Nei Ching the Chinese classic on internal medicine attributed to Huang Ti the Yellow Emperor, is one of the most important early Chinese medical books, particularly its first part, Su Wen, or the "intimate conversations' between the Emperor and his physician Ch'i Pai Dr Veith s work is the first extensive translation of a major part of this tremendous collection of medical books into English and constitutes an excellent and critical interpretation of the first 34 chapters of the Nei Ching together with a comprehensive analysis of the age, authorship and philosophic foundations of the text The elucidation of the Tao, the Yin and the Yang, the celestial stems and other basic concepts make interesting reading It is believed that Dr Veith s book will be favorably accepted not only by members of the medical profession but also by Sinologists, perhaps except for her comments on the so called "*moxibustion*' or treatment with burning herbs (usually wormwood (Artemisia)) on specific points of the body Quoting Nakayama and dictionaries, she derives moxa from "moe kusa" (page 72) Some philologists may rather claim that "mogusa' is the name of the herb used for the procedure called o kyu' or "yaito' in Japanese In case of a true verbal contraction moeru kusa,' meaning 'grass afire," would perhaps be the more logical origin This is, however, only a minor detail and does not reduce the great value of the volume From the point of the physician practicing Western scientific medicine, it is believed that Dr T Nakayama s not too critical Acupuncture et Medecine Chinoise Verifiees au Japon' (Paris, 1934) and Mr John Hersey s article on Hiroshima in *The New Yorker* the only sources quoted by Dr Veith, are not sufficient proof for the therapeutic efficacy of the treatment with burning herbs The illustrations of the book are excellent and the printing is well done

Physiology of the Nervous System By John Farquhar Fulton O B E M D D Sc Sterling Professor of Physiology Yale University New Haven Conn Third edition Cloth $10 Pp 667 with 141 illustrations Oxford University Press 114 Fifth Ave New York 11 1949

The new edition of this widely used book is up to date and covers the important developments which have occurred since the second edition was printed in 1943 It occupies a position between a textbook and a reference work Fulton's clear style economy of words and the flavor added by his interest in the history of medicine have produced a pleasing to read book, and his authoritative perspective has turned it into a well balanced work The excellent bibliography-index makes the book useful for the researcher although it will probably be found to be somewhat too abbreviated to serve as anything more than an introduction to the literature in the large field of neurophysiology The new material which has been added in this edition has been well integrated with the old and in some cases entire sections have been rewritten

Histopathology of the Skin By Walter F Lever M D Instructor in Dermatology Harvard Medical School Boston Mass Cloth $10 Pp 449 with 221 illustrations J B Lippincott Company 227 231 S 6th St Philadelphia 5 Aldine House 10 13 Bedford St London W C 2 2083 Guy St Montreal 1949

This is the best monograph on histopathology of the skin to become available in English The author, who is a member of the department of dermatology, Harvard Medical School, has had long experience in the teaching of dermatopathology to graduate students and in the difficulties which this field of pathology presents to the general pathologist

The skin, being the most available organ of the body, is being subjected to biopsy with increasing frequency Such study is regarded as routine in any long-standing eruption and as absolutely essential in any lesion which may be malignant A considerable number of diseases involving the skin may be diagnosed with accuracy on the basis of the histologic changes in others, the diagnostic criteria are equivocal While the general pathologist is ordinarily capable of distinguishing malignant from nonmalignant lesions of the skin, he is frequently at a loss in interpreting various nonmalignant changes exactly, because of lack of experience in skin pathology or understandable lack of familiarity with the complex and at times overwhelming terminology attached to various dermatologic conditions

In his monograph, Lever indicates clearly those diseases of the skin which may be diagnosed with reasonable accuracy on the basis of microscopic changes and those which may not A particularly valuable feature is the inclusion of a short clinical description of the disease in question with the more detailed description of the histologic changes The shortcomings of standard histopathology are not underemphasized, but when the changes present are characteristic the author s descriptions are succinct, clear and informative

The photographic reproductions, which number 221, are in general excellent. Four colored plates representative of eight different skin conditions are included The bibliographic references at the end of each chapter are satisfactory and inclusive The format of the book is pleasing

This monograph fills a definite gap in American medical literature, and will prove very useful to specialists in dermatology and to general pathologists

Experimental Cell Research Supplement I Edited by *Torbjörn Caspersson* and Ludwik Monné Published with the Aid of Grants from the Swedish State and from the United Nations Educational Scientific and Cultural Organization Proceedings of the 6th International Congress of Experimental Cytology Stockholm July 10th-17th 1947 Cloth $10 Pp 603 with illustrations Albert Donnier Stockholm Academic Press Inc 125 E 23rd St New York 10 1949

This volume contains 123 papers on various aspects of cytology, including the histology, biochemistry and physiology of the cell The authors are outstanding experts in the fields discussed and conduct their research in laboratories in all parts of the world

The volume is divided into eleven sections The *first* deals with chemical constituents of protoplasm but is concerned primarily with protein synthesis and structure The *second section*, on the submicroscopic structure of the cell, contains a number of papers reporting studies utilizing the electron microscope Two papers deal with the structure of nerve cells

The genetic aspects of cytology are thoroughly covered in the third section, in which papers on chromosomes, gene structure, mechanics of mitosis, nuclear cytochemistry and chemical reactions between viruses, chemicals and physical agents and genes are discussed

A section is devoted to the chemistry and cytology of viruses and bacteria Particular attention is devoted in several papers to protein nucleotide metabolism of these organisms Another section, containing two papers, discusses quantitative studies on compliment and certain serologic aspects of erythrocytes

Muscle chemistry and structure are discussed in five papers the principal emphasis being on the interpretation of studies utilizing electron microscopy The chemistry of the muscle proteins is discussed in a comprehensive paper

A section on cell metabolism contains a number of papers, many of them brief, on detailed aspects of certain metabolic actions of cells Similarly, a short section on cell permeability presents four papers on specific phases of permeability One, on the intestinal cell in fat absorption, has obvious clinical implications

A long section on correlations between structure and function of the cell contains numerous papers on specific topics However, the general impression gained is that there is yet much to be learned before correlations can be made which will have value in prediction of function from an examination of structure

The section on tissue culture is of interest in demonstrating the great advances in this technic that have been developed in the past 40 years The variety of cell types amenable to culture is large, and studies of the reactions of pure cell cultures to various chemicals provide the basis for future chemotherapy of such diseases as cancer Also, some of the cellular reactions of disease are explainable on the basis of reactions observed in tissue culture

The section on developmental physiology thoroughly covers cellular growth and differentiation Particular attention is paid, in many of the papers, to the mechanisms controlling cell multiplication and differentiation

The papers in this volume all present the results of original work Thus, the book is intended for one already well versed in experimental cytology Biochemists, physiologists, zoologists and bacteriologists will find papers of interest in this book

Cancer of the Esophagus and Gastric Cardia Edited by George T Pack B S, M D, Clinical Professor of Surgery New York Medical College, New York. Cloth $5 Pp 192, with 25 illustrations C V Mosby Company, 3207 Washington Blvd St Louis 3 1949

This symposium deals with one of the more recent extensions of the scope of radical surgery for carcinoma It represents clearly the present fairly standardized surgical concepts of radical resection of the esophagus and gastric cardia for carcinoma Various surgeons who have been greatly interested in this field and who have contributed considerably to the development of these operations have presented their experiences covering many important aspects of this problem The book includes historical background of the development of the various early operations which finally have led to present day radical resections, with restoration of the continuity of the upper gastrointestinal tract within the thorax There is a thorough and reemphasized discussion of diagnosis, preoperative and postoperative management and of the different methods of surgical approach and the now accepted methods of restoring the intestinal continuity after radical resection

In addition to the important aspects of the clinical management of patients with cancer of the esophagus and gastric cardia, the eighteen contributors to this symposium have presented the important technical aspects of the various surgical approaches to this area—the left transthoracic, transdiaphragmatic approach, the left abdominothoracic approach, the left abdominal and right transthoracic approach, the cervicoabdominothoracic approach, for all levels of resection, the reestablishment of continuity by mobilization of the stomach and displacement of this organ into the thorax and into the neck for anastomosis, and the use of the jejunum by the Roux Y for this same purpose, as well as the use of a skin tube in the cervical esophagus These independent opinions give a valuable summary of the present status of these operations

The 1949 Year Book of Obstetrics and Gynecology (October 1948 August, 1949) Edited by J P Greenhill B S M D F A C S Professor of Gynecology, Cook County Graduate School of Medicine Chicago Cloth $4 50 Pp 629 with 132 illustrations The Year Book Publishers Inc 200 E Illinois St Chicago 11 1950

This book is a record of the important contributions made during the year in the field of obstetrics and gynecology The editorial articles abstracted are timely and well chosen The editorial comments are pertinent and lucid and are particularly noteworthy, as the editor depends frequently on his own tremendous experience The book is recommended to the specialist as well as to the general practitioner

Monographs on Surgery 1950 Edited by B Noland Carter M D Ph D Professor of Surgery University of Cincinnati Ohio Advisory Editors Gynecology Joe V Meigs M D Clinical Professor of Gynecology Harvard University Medical School Urology Charles Huggins M D Professor of Urology, the University of Chicago Orthopedic Surgery, Alfred R Shands M D Medical Director Alfred I duPont Institute of the Nemours Foundation Wilmington Del Cloth $12 50 Pp 501, with illustrations Thomas Nelson & Sons 385 Madison Ave New York 17 Parkside Works Dalkeith Road Edinburgh 9, 3 Henrietta St, London W C 2 1949

Loose Leaf Surgery has now adopted a change in policy dropping loose leaf form, offering a bound volume annually to record advances in surgery These books will contain monographs on surgical aspects of varied interest, covering up-to date important advances This initial volume presents a group of papers on subjects which have received some unanimity of opinion There has been no attempt to correlate the various subjects discussed, which are chemotherapy in surgery, carcinoma of the endometrium, nontuberculous, nongonorrheal infections of the urinary tract (a rather clumsy title), modern laboratory technics in urology, the bone bank, the normal and abnormal response of bone tissue, medullary fixation of fracture and arthrodesis of the spine

There are 501 well printed pages, including some illustrations and an index, which afford the surgeon much meat, well seasoned and up to date Perhaps not many men have broad enough interest to wish to read and obtain the latest information compiled by highly competent authors on this spread of subjects However, as the publishers announce that this is an experimental undertaking, probably before subsequent volumes are published, they will know the purchasing reaction of the surgical world

The volume is a storehouse of plainly written, well culled and interpreted material Some chapters contain short valuable historical reviews The chapter on chemotherapy in surgery, a laborious undertaking at best, is impressive Each section contains a helpful selected bibliography for the real student Herein lies one of the great values of this effort, since it may be used as an excellent reference for any of the subjects enumerated, whether the interest in them be active today or in five years to come On the whole, this unique compilation is worthy of commendation to students and surgeons

Cystoscopy and Urography By Jas B Macalpine D Sc F R C S Consulting Urologist Christie Hospital and Holt Radium Institute Manchester Third edition Cloth $13 50 Pp 554 with 353 illustrations The Williams and Wilkins Co Mt Royal & Guilford Aves, Baltimore 2 1949

First printed in 1927, this volume was reedited and published in 1936, but all the copies of that edition and all the materials for a reprint were destroyed during the raids on London This edition includes recent advances and reflects modern trends of urologic thought

Many new excellent colored plates and diagrams have been included Special attention has been given to the diagnosis of urinary tuberculosis, and this is preceded by a chapter on pathology of that disease The historical discussion of urologic procedures and instruments is excellent Cystoscopic instruments and their care is thoroughly discussed The author has gone to unusual lengths to explain in detail the technic and findings of cystoscopy for the beginner This book is a valuable addition to the library of any doctor performing cystoscopy

Handbook of Medical Management By Milton Chatton A B, M D Instructor in Medicine University of California Medical School, San Francisco Sheldon Margen A B M D Clinical Instructor in Medicine University of California Medical School San Francisco and Henry D Brainerd A B, M D Assistant Clinical Professor of Medicine and Pediatrics University of California Medical School San Francisco Boards $3 Pp 476 University Medical Publishers Post Office Box 761 Palo Alto Calif 1949

Tightly compressed into this little handbook are a surprising number of facts and a surprising amount of good advice, all presented in crisp outline form Regardless of the disease, one may find a brief description, the methods of diagnosis, treatment principles and specific details A number of small handbooks of this type are available several being the natural outgrowths of local intern's manuals This is certainly one of the best

Queries and Minor Notes

The answers here published have been prepared by competent authorities They do not however represent the opinions of any official bodies unless specifically stated in the reply Anonymous communications and queries on postal cards will not be noticed Every letter must contain the writer s name and address but these will be omitted on request

DIZZINESS

To the Editor—Is there any effective treatment for vertigo associated with cerebral arteriosclerosis? Hypertension is controlled by diet, including rice and free from sodium
M D New Jersey

This inquiry was referred to two authorities whose respective replies follow —Ed

Answer—It is not stated whether the vertigo preceded the treatment or not A low sodium diet if carried too far might be the cause A normal sodium level is absolutely essential A low sodium diet should not be used unless absolutely indicated and when it is used blood especially urinary chlorides should be carefully checked A simple and useful bedside test for sodium chloride in the urine is that of Fantus (J A M A 107 14 [July 4] 1936) Insufficient diet also might be the cause of the vertigo especially if it really lowered the blood pressure If the blood pressure is not reduced a venesection (500 cc) will probably afford relief for a few weeks and will be advisable in several respects It is not easy to eliminate every possible source of vertigo Ears eyes cerebellum gastrointestinal tract and sensitization must be considered Purely symptomatic treatment is best accomplished with bromides or bromides combined with quinine or quinine alone given night and morning Hydrochloric acid may help and strychnine may be of help Tobacco and liquor should be omitted

Answer—Vertigo in cerebral arteriosclerosis may occur with the cerebral ischemia associated with the thickened cerebral vessels themselves When in addition as in this case there is hypertension the question arises as to the presence of left ventricular failure making worse an already reduced cerebral circulation It is possible that the left ventricular failure would be a greater factor actually than the thickened cerebral vessels

Paroxysmal hypertension and fluctuations in the heart rate and rhythm may cause vertigo Many different signs of weakness may appear with a sodium-free diet and vertigo could be one of them The toxic effects of salt substitutes in certain sensitive persons are well known especially if the salt substitute contains lithium

The treatment of course is obvious in that digitalization is valuable in left ventricular failure and in variations in heart rate and rhythm Some workers effect vasodilatation by the use of nicotinic acid others by the usual aminophylline and papaverine like preparations In the absence of aural disease and in the event of failure with suggestions mentioned an experimental procedure might be tried on the assumption that cerebral ischemia is caused by the cerebral arteriosclerosis It could be justified only in the presence of prostrating disability as a result of the vertigo This new procedure consists of the use of dicumarol® to depress the prothrombin level to 30 or 35 per cent Theoretically this would increase the fluidity of the blood and possibly increase the caliber of the cerebral vessels thereby improving the cerebral circulation

ARTIFICIAL INSEMINATION

To the Editor—A patient has been married twice several years each time without producing offspring He had severe gonorrheal epididymitis in his youth on the left side Lately he had a severe injury of the right testicle He wants to know whether any type of aspiration of the testicle and insemination of his present wife would give hope of producing offspring if not he would like to know of a reputable center where his wife could receive artificial insemination from an appropriate donor
George H Lancaster M D Weslaco Texas

Answer—Severe epididymitis with high temperature, local swelling and pain usually results in destruction of testicular tissue A biopsy or aspiration of the testicle will establish fertility Artificial insemination with aspirated spermatozoa is possible If persistently attempted and if the spermatozoa are normal success may be anticipated Treatment with spermatozoa from a properly selected donor can be obtained through the National Research Foundation for Fertility Nesconset Long Island N Y

TREATMENT OF PINWORM INFECTION

To the Editor—I have an adult patient with pinworms that resist treatment I would appreciate suggestions
Paul H Cronenwett M D Alameda, Calif

Answer—Although none of the chemotherapeutic agents used against Enterobius vermicularis, the pinworm, is completely effective when an adult is not cured after several treatments one suspects reinfection rather than treatment failure The pinworm lives about 60 days in man before passing out to the perianal region Hence without treatment, the subject would lose his infection in two months To insure a minimum opportunity for reinfection all members of the household should be examined with anal swabs All who are found infected should be treated simultaneously Failure to examine and treat the whole family may leave infected persons who will reinfect those treated

Tetrachloroethylene although not as effective as methylrosaniline chloride (gentian violet) has the advantage that only a single dose may be needed The treatment of pinworm with tetrachloroethylene is as follows The night preceding treatment only a light supper of nonfatty foods is allowed and no breakfast is permitted on the morning of treatment The adult dosage of tetrachloroethylene (4 cc.) is mixed with a suitable amount of magnesium sulfate in a glass of water After this mixture is taken no food should be permitted until after the bowels have moved Wright and his co workers found that this method of treatment resulted in a cure in approximately 47 per cent of patients

The adult female pinworm when gravid migrates to the perianal region and there disintegrates freeing her eggs These infective eggs are distributed in the host's bed and into the house in general Fortunately the eggs are not long lived under ordinary conditions Precautions should be taken, however to limit their distribution Infected persons while undergoing treatment should wear close fitting underpants continually and these should be washed in boiling water every 24 hours Bed sheets should be carefully removed from the bed two or three times a week and boiled The finger nails should be kept short and clean and hand washing before meals and after toilet regularly practiced

DESENSITIZATION IN ALLERGIC CONDITIONS

To the Editor—I have become skeptical about the value of desensitization procedures in allergic disorders particularly asthma Is this form of treatment any good?
M D, Illinois

Answer—Analysis of the situation will be aided if consideration is given to some of the causes that produce failure in desensitization 1 If asthma is used as an example about 50 per cent cannot be proved to be due to allergy There is nothing to desensitize in these patients but some laboratorie always find positive skin tests from which the referring physician infers that desensitization is indicated Some of these patients may be allergic, but in the present state of information their specific allergy is not known 2 Many, perhaps most, of the specific allergens can be better managed by elimination than by desensitization For example dogs cats feather pillows and foods are much more easily eliminated Only in extremely rare situations is desensitization necessary With respect to foods hypodermic desensitization is not indicated Yet one sees continually treatment being given with mixtures of the aforementioned and similar antigens prepared by laboratories often at the direct request of the family physician 3 In some instances the exposure to the inhalant is too great to anticipate results by desensitization Failure is the rule in such a case, and if the exposure cannot be avoided the patient must be told that the likelihood of results by desensitization is small 4 Desensitization to certain antigens such as cottonseed or drugs is either hazardous or its rationale has not been established 5 Desensitization alone may fail if associated factors (infection emphysema and nervous strain) are ignored 6 With the elimination of the preceding types of cases there remain allergic persons with asthma who are primarily sensitive to pollen molds and dust. These antigens are generally unavoidable and should be employed in treatment of such patients in whom careful desensitization often will yield satisfactory results Turning the patient over entirely to the nurse for treatment will certainly diminish the prospects of good results the patient must be observed personally by the physician The experienced and conservative allergist readily admits that desensitization is tedious bothersome costly and frequently conducive of only temporary results He will admit further that some patients with present technics are unable to respond with "antibodies" and fail to achieve any demonstrable immunity However there is much current research which may improve these imperfections

To exemplify the effectiveness of desensitization, attention is called to pollen asthma In the Central States about 35 per cent of those who have ragweed hay fever also have concomitant asthma Careful, conservative desensitization prevents almost all such asthma It is common kowledge that such asthma is more effectively remedied by desensitization than is the hay fever One may summarize the reply by this brief statement Desensitization is helpful if the patients are properly selected and carefully managed

OCCASIONAL BLOODY DISCHARGE FROM NIPPLES

To the Editor —A 40 year old obese white woman complains of painful, swollen breasts with a yellowish discharge and occasional bloody material from both nipples Her breasts become full and distended on some days and later become smaller Palpation shows varying tenderness at different times The breasts are extremely large and hyperplastic There is a discharge of milk-like secretion from both nipples but no enlarged axillary glands She has had three children but no pregnancies during the past five years Her mentrual periods have been regular She has experienced occasional hot flushes Blood pressure is 140 systolic and 86 diastolic Pelvic examination revealed no abnormalities Diethylstilbestrol, 2 mg three times a day, has been tried without benefit I would appreciate advice

C K Gardner M D, Oak Hill W Va

Answer —The history suggests mesoplasia plus intraductal papilloma The congestion of the breast followed by regression is probably related to the menstrual cycle This could be determined by accurate notes on the calendar relative to the days of menstrual flow and the degree of congestion experienced on various days of the month Although secretion is frequently associated with such congestion of the breast, a bloody tint would be unusual One, therefore, must consider intraductal papillomas Two methods of treatment are available First, restriction of salt and fluid intake with the administration of 1 Gm of ammonium chloride four times daily This will have a tendency to lessen the congestion and should influence the amount of secretion within the breast The second possible method of treatment would be with testosterone propionate, 10 mg intramuscularly daily, until a regression of the breast with an associated cessation of the discharge has resulted If, after this treatment and the subsidence of the tension, a bloody discharge is still present or can be elicited by milking, further investigation would be indicated If it is impossible to localize the lesion, roentgen therapy could be utilized to destroy the papilloma and stop the blood-tinged discharge If, however, an area of thickening is discovered or a mass can be palpated at any time, this area or mass should be removed for microscopic study

PENICILLIN AND EPIDERMOPHYTOSIS

To the Editor —I read an article in a popular magazine which states that penicillin should never be used when a patient has or has had "athlete's itch" I have frequently given penicillin to cure the secondary infection superimposed on "athlete's itch," and I never noticed any ill effects Would you enlighten me regarding this matter?

James H Barnebee Jr, M D, Crowell Texas

Answer —A few patients who receive penicillin may show an exacerbation of epidermophytosis, with an increase in the eruption in the feet and sometimes in the groins This is not a universal reaction for patients who have epidermophytosis, but it is one that has been observed on occasion There is no contraindication to the use of penicillin for the treatment of secondary infections superimposed on epidermophytosis, the only caution being that one should look for abnormal hypersensitive reactions in these areas

SECRETION OF BREAST MILK

To the Editor —How effective is application of short wave therapy to the breasts to increase milk secretion? M D, Indiana

Answer.—The supply of breast milk after delivery depends on the action of estrogen and progesterone on the ducts and secretory acini and tubules, respectively, during pregnancy and on prolactin, a hormone from the anterior hypophysis, which is believed to stimulate the actual supply of milk Irritation of the nipples causes an increase in the secretion of milk This can be demonstrated clinically by placing the baby to the breast early and by using a breast pump Shortwave therapy to the breasts may be helpful, but it is not a specific means of increasing milk secretion

TREATMENT OF POLYCYTHEMIA

To the Editor —I desire information concerning polycythemia In October 1948 a patient the younger of two brothers, complained of failing vision in his right eye, he was treated with penicillin in sodium chloride solution for seven days because of optic neuritis While he was being treated, progressively rising hematocrit and hemoglobin levels were noticed and a diagnosis of polycythemia was made and verified The older brother was hospitalized in November with severe virus pneumonia He was allergic to aureomycin and was treated with streptomycin and penicillin He recovered, but later a hematocrit reading of 66 was observed, which in two weeks, after one venesection (500 cc), fell to 47 I do not believe that the older brother has polycythemia The father, a Jew from Central Europe, has had episodes of epistaxis for several years once every three to six months I feel that this man has the true form of polycythemia which develops in late middle life in Jewish men from Central Europe, with a life expectancy of four to eight years Is there any record of polycythemia following penicillin therapy? Will the older brother have polycythemia later in life? Is there any form of successful treatment for the younger brother other than venesection when the hematocrit level becomes high? The father has a high normal blood cell count and hematocrit level, the older brother has a normal blood cell count and hematocrit level, the younger brother has responded favorably to monthly bleedings with a fall in the hematocrit reading from 48 to 41 after a bleeding of 750 cc

Fred J Phillips, M D, Quakertown, Pa

Answer —There is no published record of polycythemia following penicillin therapy The administration of penicillin does not produce an increase in the concentration of erythrocytes in the peripheral blood except as a secondary effect in patients who have anemia due to infection, in which event the increase in erythrocytes may be attributed to eradication of the infection The familial incidence of polycythemia is greater than for the average population However, this statement is based largely on the reports of specific families Information which would allow a statement on the actual probability of the disease developing in this sibling is not available, inasmuch as the statistical incidence of the disease in families is not known

The data presented relative to the older brother suggests a laboratory error This may be emphasized by the improbability that one bleeding of 500 cc could produce the reported decrease in the hematocrit readings If one assumes that the older brother had a total circulating blood volume of 5,000 cc, his red cell volume with a hematocrit reading of 66 per cent would be 3,300 cc If one assumes that there was no decrease in total blood volume, he would have had a circulating red cell volume of 2,350 cc when his hematocrit level was 47 This would have been a decrease of 950 cc of red cells However, the 500 cc bleeding with a hematocrit level of 66 per cent would have removed only 330 cc of red blood cells Consequently, there would have been a surplus of 620 cc of red cells which could not have been accounted for by the bleeding The destruction of this amount of blood intravascularly would have resulted in intense jaundice, which was not observed Consequently, it would appear that the initial hematocrit reading of 66 per cent was erroneously high, and there is no evidence presented that the older brother actually did have polycythemia

Polycythemia vera can be successfully treated with radioactive phosphorus Such treatment may control the disease in some patients for prolonged periods without repeated treatment However, in other patients the disease is difficult to control with radioactive phosphorus, and carefully regulated repeated doses must be given In the hands of persons experienced in the use of radioactive phosphorus in polycythemia vera, such treatment can be considered desirable In the absence of considerable experience and skill, however, radioactive phosphorus therapy must be considered extremely hazardous The use of phenylhydrazine and acetylphenylhydrazine for polycythemia vera is not as satisfactory a form of therapy as is venesection In a young healthy, adult male venesection is the method of choice

CONTINUED LACTATION AFTER DELIVERY

To the Editor —A 24 year old woman has lactated since her delivery three and one-half years ago Basal metabolism and results of physical examination are normal The breasts feel normal, but milk can be easily expressed There has been no response to androgen therapy Please advise as to treatment and whether she should become pregnant

M D, Connecticut

Answer —This phenomenon is not uncommon, and there is apparently no danger connected with it Attempts to express the milk should not be made, as this tends to keep up the milk supply There is no apparent reason why the patient should not become pregnant

ACUTE MYOCARDIAL INFARCTION

To the Editor —A man aged 56 had agonizing substernal pain which radiated down both upper extremities and which required the administration of 0 05 Gm of morphine for relief The syndrome was clinically compatible with acute myocardial infarction He was given dicumarol ® and his progress was satisfactory for eight days when he had simultaneous hematemesis and melena (small quantities of tobacco-juice material which tested 4 plus for blood) and excruciating pain in the right upper extremity which required 0 1 Gm morphine intravenously for relief The leukocyte count on the following day was 26 000 per cubic millimeter and the blood urea nitrogen level was 20 mg per hundred cubic centimeters In seventeen days following this bout of pain the patient had intermittent bouts of pain varying from moderate to severe requiring from 0 016 to 0 1 Gm morphine given intravenously He had intermittent tarry stools, and the erythrocyte count fell from 4 500 000 to 3 600 000 per cubic millimeter and the hemoglobin from 14 6 to 9 8 Gm At present the stools are brown the leukocyte count and differential count are normal and the blood urea nitrogen determination is 19 8 mg per hundred cubic centimeters Serial electrocardiograms have from onset shown gradually increasing auriculoventricular block from a P R interval of 0 32 second on the admission tracing on to the Wenckebach phenomenon and now complete auriculoventricular block with a pulse rate of 40 No proof of infarction has appeared no Q waves have developed nor have R waves disappeared Varying electrocardiographic evidence of ischemia (diphasic T waves and flat T waves) has been manifested Alteration of S T segments has been absent Unipolar leads have been used and also augmented unipolar leads but no additional diagnostic help has been forthcoming The blood pressure which was 170 systolic and 100 diastolic on admission has gradually fallen to 102 systolic and 60 diastolic on the left and 122 systolic and 64 diastolic on the right The two radial pulses have been synchronous The patient is robust There is no historical or clinical evidence of hepatic cirrhosis or malignancy Several consultants are as puzzled as I Dicumarol® has been freed of responsibility for bleeding since prothrombin values were 100 per cent when the last episode occurred It seems possible that dissecting aortic aneurysm could account for this syndrome but it is difficult to explain melena on this basis Of course bleeding peptic ulcer may account for the bleeding but it seems more plausible to account for all the abnormalities on the basis of a single diagnosis Robert G Lehman M D San Pedro Calif

Answer —The case cited is extremely interesting and puzzling Although the presentation is excellent, any opinion given without an opportunity to personally examine the patient and his records is speculative This illness does not seem to be the result of dissecting aneurysm of the aorta The distribution of the pain is not consistent with this diagnosis and there is no objective evidence to suggest involvement of the primary branches of either the thoracic or abdominal aorta Hemoptysis hematemesis and melena have been described in association with dissecting aneurysm Hemoptysis and hematemesis are commonly the result of rupture of the aorta into a bronchus or the esophagus and the subsequent hemorrhage is massive If the aortic dissection involves mesenteric arteries it results in infarction of a segment of bowel Melena or bloody diarrhea may ensue accompanied with the signs and symptoms of intestinal obstruction

The most likely diagnosis in this instance is acute myocardial infarction The evidence is adequate to substantiate this diagnosis The distribution of pain is consistent, and the changes noted in serial electrocardiograms are most significant. Auriculoventricular block is an uncommon complication of acute myocardial infarction but has been reported as occurring in 3 to 4 per cent of cases In such instances the area of infarction may be small which may account for the absence of dramatic changes in these electrocardiograms The appearance of pain in the right upper extremity on the eighth day of illness is difficult to explain It may have represented (1) pain accompanying extension of the area of infarction or (2) the onset of reflex dystrophy pain i e, shoulder-hand syndrome Since additional electrocardiographic changes did not appear it would seem not unlikely that a right upper extremity pain persisting seventeen days indicates the development of reflex dystrophy The hematemesis and melena exhibited by this patient is explained best by assuming the presence in the stomach or duodenum of a lesion distinct and separate from the primary illness which began to bleed under the impetus of dicumarol® therapy

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GOAT S MILK AND PEPTIC ULCER

To the Editor —Is there anything to a popular belief that *goat s milk* has particular value *in* the treatment of peptic ulcer?

M S Rayman M D Two Harbors Minn

Answer —No The use of goat s milk in the treatment of peptic ulcer has been popular in Russia and the Balkan countries since the early twenties Although many articles have appeared in the foreign literature claiming it to be superior to cow s milk no convincing data have ever been presented to prove that it has a greater buffering capacity than cow s milk

BEER, CELLULOSE DOPE' AND PARALYSIS

To the Editor —A patient has worked spraying airplane wings with "cellulose dope The name of the material used was obtained from the Quonset Naval Air Base I could not get any more specific information Just before admission to the hospital, the patient had drunk 20 glasses of beer and yet was able to walk into his home Once there, however he collapsed and when picked up and placed on the bed he could not move his arms or legs He could talk rationally In falling he struck his head against a radiator but *roentgenograms showed no damage to* the cervical portion of the spine or skull *He has been in the hospital* three weeks and is gradually improving He can walk in the ' walker and his double wrist and ankle drop is less pronounced Is this ' cellulose dope poisonous and is there any specific treatment?

D A Smith Newport R I

Answer —Information in this query is not sufficient to permit a precise reply The term "cellulose dope" covers scores of chemical mixtures The solvents for nitrocellulose and cellulose acetate, together with thinner materials, include numerous toxic agents Triorthocresyl phosphate and closely related chemical substances employed in lacquers as plasticizers can induce the pathologic condition described, particularly the double ankle and wrist drop This phosphate was the source of "Jake paralysis" of the prohibition era This substance is readily absorbed through the skin With a boiling point of 410 C, its natural evaporation is trivial, but in an industrial spray its inhalation as a mist is facilitated This patient's state should be reappraised in relation to this plasticizer's action

Peripheral neuritis from chronic alcoholism may not be denied Any person who imbibes 20 glasses of beer in an afternoon has had alcohol before and often For treatment, in addition to physical therapy, a high intake of vitamins including thiamine, may be beneficial

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AMENORRHEA AFTER TONSILLECTOMY

To the Editor —A woman aged 23 in *May* 1949 had swollen *painful knees and* was unable to walk She had large hypertrophic infected tonsils *and a long* standing lesion of the mitral valve She did not have cardiac decompensation and *responded to penicillin* therapy The rheumatic condition of the knees cleared *and I removed her tonsils* in *June* 1949 following which she has failed to menstruate *Urine* examination for pregnancy was negative I gave chorionic gonadotropin *progesterone and* estrone She continues *to have amenorrhea* otherwise her general condition is excellent What measures might be of help?

Hamlin B Lindsay M D, Washington Ind

Answer.—Amenorrhea occasionally follows psychic or physical trauma, and not infrequently it results from malnutrition In this case the shock of tonsillectomy may be responsible for the absence of menstruation A simple way to induce uterine bleeding is the procedure recommended by Zondek. The patient should be given 25 mg of progesterone intragluteally on two successive days (or, more economically, 12 5 mg of progesterone and 2 5 mg of estradiol benzoate intragluteally on two successive days) The interval between the second injection and the commencement of menstruation varies from seventy-two to one hundred and twenty hours The combination of progesterone and estradiol benzoate may be purchased in ampuls prepared by a pharmaceutical company

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OSTEOMA IN OCCIPITAL REGION

To the Editor —Please give the differential diagnosis and accepted treatment for an osteoma *in the occipital* region Do these tumors ever become malignant? What symptoms would a tumor of this sort produce?

M D New York

Answer —The differential diagnosis depends mainly on the roentgenographic appearance, and sometimes tangential views are helpful The conditions which *must* be considered in the differential diagnosis are angioma and meningioma. The osteolytic lesions of the skull, including myeloma giant cell tumor osteoid osteoma and eosinophilic granuloma, are more readily excluded The usual osteoma produces a rounded, dense homogeneous shadow protruding from the outer table of the skull

The standard treatment for this condition today is surgical removal, particularly if the lesion shows signs of increase in size or extent Malignant degeneration or transformation may occur but is rare and complete surgical removal of the original osteoma should not be followed by recurrence or malignant degeneration Other methods of therapy, including irradiation treatments are not helpful and should not be employed

The signs and symptoms produced are usually the presence of a bony swelling and a mild degree of pain, although there may be no pain

EFFECT OF PNEUMATIC HAMMERS ON FINGERS

To the Editor —*Is there an industrial hazard in the operation of pneumatic hammers? A man aged 40 presents an arterial insufficiency involving the index finger of the left hand accompanied with a trophic ulcer of the tip of this finger This man is employed in a foundry From 1933 to 1939 he operated a pneumatic hammer About 1939 he noticed that the index finger of the left hand was blanching on exposure to cold This condition has persisted even though during the past ten years he has not been operating a pneumatic hammer At present he presents the clinical picture of unilateral Raynaud's disease Physical examination has revealed no other abnormality, except grade I pulmonary silicosis The left index finger turn "dead white" whenever it is in contact with cold On palpation, there is a definite temperature change in the left index finger involving the distal two thirds (approximately) of the finger This temperature change is apparently present at all times The patient believes that the tight grip of the index finger on the compression hammer along with vibratory trauma when the tool is in operation has caused the damage Can this be classified an occupational disease? What treatment should be employed?*

G K Parke, M D, Akron, Ohio

ANSWER —A variety of lesions have been associated with the use of vibrating tools Some are vascular and some neuropathic Heavy tools may cause tenovitis and joint damage The frequency of vibration largely determines the type of damage, but the amplitude is likewise a modifying factor In operations involving high vibration low amplitude exposures and low temperatures are highly significant The terms "white fingers" and "dead fingers" repeatedly appear in descriptions and the left index finger (in right handed persons), which is on the guiding rather than the holding hand, is most frequently initially involved The present instance is somewhat typical except in three respects The duration is extraordinary for pure vibration disease, the type present usually is caused by high speed tools and in such a severe condition some additional fingers might be expected to present damage and earlier probably did Gangrene is known to arise but is rare Persons with silicosis and cardiac impairment sometimes have clubbed fingers A relationship with 'white fingers' and "dead fingers' is not known Treatment with nicotinic acid may be of value Data may be found in "Effects of High Speed Vibrating Tools on Operators Engaged in the Airplane Industry" (Dart, E E. Occup Med 1 515 [June] 1946) and "Occupation and Health Encyclopaedia of Hygiene Pathology and Social Welfare" (Geneva Switzerland, International Labor Office 1934 vol 2, and supp)

COLORED PERSPIRATION

To the Editor —**I have observed 2 patients who are undernourished and in poor physical condition A definite iron deficiency anemia was present in each The main point of interest to me was the statement that their perspiration had begun to stain their underclothes yellow since the beginning of their illness In each case it was impossible to remove the yellow stain from the clothes by the usual methods of washing**

Beaufort A Spencer, M D, Bloomington Ind

ANSWER —Chromhidrosis of various colors is now detected with such frequency as no longer to constitute a medical curiosity The sweat may be black, blue green brown, red or yellow Colored sweating may be limited to small areas such as around the eyes, or become generalized Green sweating occurs among some workers exposed to copper Cyanhidrosis (blue sweating) has been associated with abnormal indol metabolism It is believed that the blue color may be acquired on the skin's surface immediately after colorless perspiration Pseudochromhidrosis relates to colored sweat produced by admixture with substances or organisms on the skin's surface Dissimulation is common At present yellow and red chromhidrosis are attributed to the action of bacteria or fungi on the surface of the skin or lying deep along the hair shaft or within the sudoriparous canals A variety of organisms have been segregated, particularly Trichomycetes palmellina In chromhidrosis it is not necessary that hyperhidrosis exist Some victims appear to be in full health, but more often this condition is encountered among emotionally unstable, neurotic persons, with greater frequency among women

RIDGING OF THE NAILS

To the Editor —**A 65 year old patient has pronounced vertical ridges of the finger nails** *What is the cause of this disturbance?* **The urine and blood cell count are normal There is no fungus or other infection present**

M D, New York

ANSWER —Vertical ridges indicate some permanent alteration in the growth zone of the nail Most often it is a congenital defect Arsenic poisoning is said sometimes to be a responsible factor, also injury due to roentgen rays Transverse ridging of the nails often indicates a recent severe illness, perhaps a period of nutritive deficiency No single vitamin has been incriminated

CHEWING TOBACCO

To the Editor —*I am asked almost daily whether chewing tobacco could affect certain persons the same way as smoking cigarets cigars or a pipe My answer usually is yes*

I S Easton M D Fairview, Ill

ANSWER —Chewing tobacco results in absorption of nicotine and symptoms of nicotine effects similar to those from smoking cigarets, cigars and pipes The chief effects of tobacco on the cardiovascular system, the central nervous system and the autonomic nervous system are from nicotine and therefore occur with chewing the same as with smoking tobacco However the local effects of chewing tobacco on the mouth and particularly on the teeth, are much greater than from smoking

SEX ABILITY FOLLOWING ORCHIECTOMY

To the Editor —*A patient complains of inability to perform marital sexual act He is 58 years of age He has mild diabetes mellitus About 25 years ago he had a left orchiectomy His present complaint dates back about two years when he noticed that his erection would not remain long enough to perform the sexual act Would testosterone give this patient relief, and was the orchiectomy the cause?*

Samuel S Schept M D, Union City N J

ANSWER —It is not possible to express a satisfactory opinion without more information The difficulty the patient is having with erections may be the result of a glandular deficiency, or it may be psychogenic in origin He should be examined carefully to determine whether hypogonadism of a primary or secondary nature is present If hypogonadism is present, it is probable that the intramuscular administration of 25 mg of testosterone propionate three times a week will relieve his condition If the cause is psychogenic in nature, glandular therapy probably will not help The fact that his erections do not persist long enough to perform the sexual act suggests a psychogenic or neurogenic basis for his difficulty The removal of the left testis at the age of 33 may be a factor, although in most instances one testis is adequate

UNDEVELOPED GENITALIA

To the Editor —**What is the optimum time to start treatment of a boy with poorly developed genitalia and absent secondary sex characteristics but without any other signs of endocrine dysfunction? What is the treatment of choice testosterone propionate or chorionic gonadotropin and in what dosage?**

M D, New York

ANSWER —The optimum time to start treatment in a boy with hypogonadism is at about the age of 12 years If treatment is delayed until the age of 15 or 16, it may be impossible to produce maximum development The boy should be carefully studied to ascertain that hypogonadism is present before treatment is started Delay in the onset of puberty is sometimes observed without any glandular disturbance If one or both testes are in the scrotum, chorionic gonadotropin should be used The dose varies from patient to patient, but in most instances the intramuscular administration of 500 international units three times a week is adequate If both testes are undescended, chorionic gonadotropin should be tried first If there is no response testosterone propionate should be used in a dose of 25 mg three times a week by intramuscular injection

PAROXYSMAL AURICULAR TACHYCARDIA

To the Editor —**It was stated in The Journal, Nov 19, 1949 page 886, in response to a query on the treatment of paroxysmal auricular tachycardia, that "neostigmine 1/150 grain (0 4 mg) has been** *reported of value'* *This dose is definitely insufficient* **In our studies we showed that the required dose for adults is 1 mg, which is 2 cc of the 1 2,000 solution of neostigmine methylsulfate** *This may be effective in itself or with carotid sinus pressure The attack will usually subside within 20 minutes* **In our experience, a dose of 1 cc or 0 5 mg has been ineffective Insufficient dosage is one of the main causes of failure**

Samuel Waldman, M D, and Louis Pelner, M D, *Brooklyn*

HEAD INJURIES

To the Editor —**In** *The Journal* **Jan 14, 1950, page 144, the answer to the query by Dr Walter Newman of Springfield, Mass, on the** *rationale of keeping patients awake* **after head injuries, missed the point Where a head injury is considered of sufficient intensity to cause an epidural clot, there may be a lucid interval of even several hours, and then coma may develop** *For this reason we ask that the patient be awakened* **(not necessarily shaken) every half-hour for a few hours, to ascertain that the sleep is a natural sleep If an epidural clot causes coma, surgical intervention may be** *life saving*

Edward T Wilkes M D, Sunnyside, N Y